The Builder.

No. CCCXIII.

SATURDAY, FEBRUARY 3, 1849.

THERE are three or four matters that have come before us during the week, on which we desire to say a few words to our readers; and not having left ourselves space or time to treat each of them separately, we must string them together, as we have done on some other occasions, although in truth they have not much immediate connection.

On Thursday in last week, after listening to a paper on pointed architecture, at the Society of Antiquaries, written by the veteran architect, Mr. John Adey Repton (how much a veteran was shewn by the fact, that this was the continuation of a paper commenced by him forty years ago), we looked in at the adjoining pleasant room, where the Royal Society hold their meetings, to know what was going on there. We say a pleasant room, but to our minds it is the most pleasant room in London; its old sconces and wax lights, the quiet that prevails there, the portraits which cover every inch of the walls, including at all events one great architect, the men who are occasionally to be found there dozing with dignity amidst the hum of a paper, and the mace on the table, which, before Mr. Weld scandalously destroyed the belief, by proving that Charles the Second not merely bought but paid for it, we were able to point out to a country visiter as the veritable "bauble" which Cromwell bade his soldiers "take away,"—all concur to make it so.

There were very few members present—perhaps not forty—and Sir Robert Harry Inglis, bland and unctuous, with that bit of the beautiful in his button-hole in the shape of a flower, which seems as much part of his dress as his coat (and we like him for it), had by the hand a venerable looking, though not old man, and was admitting him, in the name of the Royal Society, "a fellow thereof;" and then he added a few happily chosen words, to mark his consideration of the new member—Sumner, Archbishop of Canterbury, and Primate of all England. Another neophyte approached, whom Sir Robert admitted as Lord John Russell, and to whom he said, in more and better words than we can remember, that he should not meet the views of the fellows if he did not add to his official duty, an earnest expression of their hope that all his lordship's efforts, as the Prime Minister of England, for the advantage of the country, might be crowned with success. The fellows regarded with no ordinary pleasure, he said, the accession of one who, he was satisfied, felt with him, that no earthly pursuit had stronger claims on the attention of all than the pursuits of science.

Our old friend the new secretary, Professor Bell, who has quite settled down into his seat, then began to read some statements of the average fall of rain during certain showers, which will doubtless be very useful when printed, but as we did not desire to have cold water thrown on the feelings which what we had seen had induced, we straightway departed, determined that our readers should have a note of it.

And surely, taken in connection with what is passing around us, and the state of other countries, this was a remarkable and significant scene, not without interest to any. While the infallible head of another church is a fugitive and an exile, and the ministers of other countries can scarce preserve the land from anarchy and spoliation,—here were the head of our church, and the prime minister of our country, quietly giving their adhesion to the cause of science, and taking their seats amongst its representatives.

On the previous evening we attended a meeting of a different character, from which we came away less satisfied. A placard on a wall in Westminster, setting forth that a lecture would be delivered to the Young Men's Missionary Association, on the 24th of January, by the Rev. John Aldis; subject—"The Connection of Idolatry and Architecture," took us to the Baptist Mission House in Moorgate-street. The library, a good room, adorned by the prize pictures of "The Baptism of Christ," concerning which much was said at the time of the competition, was filled with persons; and the reverend lecturer spoke eloquently and fluently, though we cannot say well; for his eloquence was sadly thrown away on a futile idea, and his audience must have left with their notions on the subject of architecture curiously mystified and perverted. The dogmas which he specially wished to inculcate were these: that architecture was purely idolatrous; that while Paganism had produced an architecture, Christianity had done nothing for it (our glorious cathedrals were quite forgotten), and—chief point of all, that columns in Druid, Egyptian, Greek, and Roman architecture were simply symbols of gods or their attendants! In Greek buildings, for example, he said, the columns were wholly useless, and were not put up with the view of being of use; they were the beginning and the end of the building, representatives of gods to awe the worshippers. His main proof (good lack!) he rested on this, that all the *parts* of an order were symbolical, and that surely, therefore, the leading idea, the column, was so too. Thus, he said the triglyphs were suggestions of Apollo's harp! and the flutings of the columns were to represent the folds of a robe. The Doric order, he continued, had no *pediment*, the robe was supposed to be so large as to hide it. In the Ionic the robe was less (the column, therefore, smaller), and the *pediment* was visible. For a time we could not understand what the reverend gentleman meant by saying the Doric had no *pediment*, but as he went on we came to the conclusion that he meant "pedestal," and ought to have said "base." As to the constant use of columns in absurd situations by ourselves, which he condemned (he was not quite so wrong here), we had, like many other imitators, taken up an absurdity, although we would not have originated it; but he repeated, in classical architecture columns were simply representatives of gods, and purely idolatrous.

The rev. gentleman appeared to possess the ear and entire confidence of the meeting as one of their pastors; and making all his statements not as being in any degree matters of doubt, but as received truths, they were doubtless so considered by the majority of his audience.

With a protest against such blind teaching, let us leave the speculative, however, and turn to the practical.

It is pretty evident, from the proceedings at a late Court of Sewers, reported in our present number, that the Barry-Austin controversy is one which may lead to considerable inconvenience. Now let us, by way of friendly warning, recommend the commissioners to keep themselves as much as possible out of hot water. They have clean and dirty water questions enough already on their hands, and they have a vast amount of serious business to get through, all of which will require the exercise of cool brains, and the assistance of a friendly public opinion. We have had too many occasions of late for regretting the evident infusion of a mixture of acerbity, acidity, and acridity, into certain sanitary compositions, and what appeared to us a frequent diverging from the straightforward path of business for the sake of giving an unexpected kick at some real or imaginary opponent. There is much to be objected to in the tone of Mr. Austin's report on the drainage of the new Houses of Parliament, and to some of the circumstances attending it. If he had put forward a plain statement of facts in very temperate language, he would have laid a good ground for a temperate discussion. As the matter now stands, there is too much feeling involved in it, too much making of a case, and striving for victory, for us to hope that the controversy will end very pleasantly or profitably. The new views that have been recently taken on the subject of town drainage may be wholly or partially right or wrong. It is very important to the public that their accuracy or inaccuracy should be distinctly ascertained, and that we should have the full benefit of a calm, unprejudiced investigation of the whole subject of town drainage by impartial and practical men of science, of whom there are several in the commission. If, however, the officers of the commission should be allowed to indulge in any thing approaching personalities, or should so shape their reports as to hurt in any avoidable manner the feelings of others, the consequence would be the excitement of something like party feeling, occasioning heated instead of temperate discussion, in the turmoil of which poor Truth might find herself flashed, or flushed, if our readers like it better, into a bottomless cesspool. Moreover, opposition to the views of the commission would be excited in numerous quarters where otherwise good will and aid might have been looked for. And though we have put the matter hypothetically, the truth is, this feeling *is* being excited, and an opposition *is* growing, and, therefore, we do most earnestly advise the commissioners to check any disposition to gladiatorial exhibition which may shew itself amongst them.

We have carefully endeavoured to steer an unbiassed course; our views, long ago and often expressed, are mainly those of the commission,—we "have done the state some service, and they know it;" but we have not the less painfully felt the injustice, as well as the impropriety in a political and in a mere gentlemanly point of view, of the apparent endeavour to cast a slur on men of standing and experience in their departments, which has been evinced by several recent publications, and which seems to have no other exciting cause than the fact, that the practice of these gentlemen and the new views are not altogether in accord. An obstinate adherence to antiquated notions clearly proved to be wrong, might justify a condemnation, which no man could be fairly required to suffer in silence, merely because he is told without proof that all his theory and practice have been based on error; but such a condemnation is doubly exasperating when it is pronounced with an assumption of infallibility on points obviously still unsettled.

Let us hope, then, that the Metropolitan Commissioners of Sewers, whom we cordially wish well through their arduous labours, will establish an additional claim to the confidence of the public, by carefully preventing the publication of any report which is not couched in the most temperate terms. If they do not, they may find the task of *deodorizing* more difficult than they think for.

We are not fond of finding fault, or even of exposing misdoings; we would rather praise than blame; still, when occasion arises, we never shrink from the task, and unfortunately this is too often the case, especially in architectural competitions. The ink of our notice of very suspicious proceedings at Chichester was scarcely dry before we were called on to refer to others equally so at Birmingham.

To expect a just decision, excepting through chance, in a competition where a board of guardians, unaided, are to make the selection, even if they have the best intentions, and earnestly desire to do right, is simply ridiculous. In the case now under discussion, to which we referred last week, there would seem to be influences at work, apart from this actual impossibility, which will prevent the likelihood of justice being done to the competitors,—at least, if the statements forwarded to us, and others publicly made, be true.

We have before us the names of fifty-two competitors, and the initials of two. How these came to be public we do not know; but supposing that the competitors understood that it was to be so, we do not object to this. Twenty-eight of these, according to the list, are from London and its suburbs, including some respectable names, and five are from Birmingham. In two meetings, or at most three, forty-seven of the designs were got rid of, seven being selected as the best. Of these seven, how many will our readers say were of the twenty-eight from London, and how many from the Birmingham list? Supposing the talent equal in both places, and making some allowance for superior facilities for obtaining local information possessed by the architects of the town, the calculation is not difficult. We will wager a new case of instruments, however, with the best arithmetician who reads us, that the result of his sums will not coincide with the fact. *The committee's list includes all five of the Birmingham competitors* (at least so goes our information) *and not one of the London men.**

The *Birmingham Journal* of Saturday last has a sensible leading article on the subject, pointing out the injustice that is being done to the competitors. In speaking of the selection the writer says, after remarking that of the two meetings in which the work had been done, considerable part of one was occupied in discussing merely the mode of determining the best,—"It may be as well to remind our readers that not one in ten of the guardians in committee assembled had the slightest practical knowledge of the subject before them. Few unprofessional men are able to 'read,' as it is termed, an architectural plan so as to understand even its general features, and we do not libel the guardians in saying that they are quite as competent to read a Greek poem, or a Sanscrit MS., as they are to analyse, still less to generalise, the necessarily elaborate and complicated details before them. If this be so, we are at a loss to determine on what principle they judged of, and threw overboard, the forty-six plans referred to. Look also at the express speed with which they got through their work. Admitting that several of the plans were ineligible on the score of expense, or, for some cause not connected with their architectural arrangements, did not require examination, there was still a number sufficient to occupy the time of a competent tribunal for a week. Consider the facts already stated; the time the mere arrangement of the plans occupied, the numerous details demanding separate consideration with reference to themselves and to the building as a whole, the cost of producing these plans, and the professional character of the architects in some measure involved in the decision, then estimate the competency of the judges, and the attention bestowed on the plans at the two meetings with these considerations, and it must be admitted that the tribunal was as incompetent as the trial was hurried and unfair."

The writer, in conclusion, urges the guardians to retrace their steps; to appoint three architects of character who are not interested in the competition, and request them to examine and report upon the plans for the guidance of the Board.

One of the guardians has attempted, in a letter to *Aris's Gazette*, to reply to the *Journal*, but says nothing more so far as relates to the real question at issue than that the board had three meetings instead of two.

One of the competitors has, in a praiseworthy manner, exerted himself to obtain a reconsideration of the designs. A meeting of competitors was fixed to take place at Birmingham on Tuesday (it being understood that the board would make their final selection on Wednesday), but the notice was so short that we doubt if many were able to attend.* Several members of the board themselves feel that an injustice (if only through want of knowledge) is being committed, and have offered, we are told, to co-operate in bringing the matter fairly before the public, and giving the competitors a chance of redress.

And so, having discoursed of Prime Ministers and Baptist Missionaries, Commissioners of Sewers and Board of Guardians, wandering without apology from London to Birmingham, we commend the matter of our paper to the consideration of the various parties whom it may concern, considering they will not find it wholly uninstructive.

NEWSPAPER ... BUILDER

* The names of the selected are (without reference to the merit), Coe and Goodwin, Lewisham; Brodrick, Whatley, Drury and Bateman, Newey, Hemming, and we believe, but this is not quite clear in our list) Yeoman, all of Birmingham.

* We were requested to co-operate by giving intimation of the meeting to the London competitors, and presiding at the meeting, but did not receive the letter until too late.

† It is almost unnecessary to state that the rights and responsibilities of Architects and Surveyors are here treated as identical.

THE RIGHTS AND RESPONSIBILITIES OF ARCHITECTS.

The mutual positions of Architects† and their Employers, differ in no material respect from the ordinary relations as by law established between principals and their agents. The most prominent peculiarity attaching to the intercourse between them arises from the nature of their association,—which is neither honorary, as in the case of barristers and physicians in respect of their clients or patients, nor yet subject to any fixed and certain claims for services, as are the attendances of attorneys and solicitors. Hence it follows, that in all engagements made with architects, unless controlled by an express agreement, the amount of compensation due to them for their professional assistance is estimated on the *quantum meruit* principle, and therefore must depend mainly upon the evidence adduced in each particular transaction, in support of the amount of skill and labour entitled to remuneration. A contract will be implied as having been entered into by the one party to pay a fair and reasonable compensation to the other, in consideration of the duties and responsibilities which he assumes, and of the labour and services which he performs. This, in the absence of an express contract, is the extent of the implied agreement. The only question that can possibly arise out of this state of things goes to the value of the services actually rendered.

An architect's engagement or retainer is not, as has been frequently erroneously supposed, necessarily co-extensive with the completion of his original design, nor continuing to the entire execution of the works primarily entrusted to his charge. The employer may at any time discharge one architect and engage another. In such a case, the architect displaced must seek his remedy on *quantum meruit*. Nor would his claim be limited to the works then actually performed or in progress; he would also be entitled to a remuneration commensurate with the prospective advantage accruing to his employer from the adoption of that design which he is denied the privilege of perfecting.

An architect is bound to exercise due care and skill in execution of the trusts committed to his charge. Nor will any thing short of a personal investigation into all the details of every matter delegated to him be sufficient to exonerate him from the imputation of neglect. In case of the occurrence of any unforeseen disaster, it will be no valid plea for him, in answer to the charge of negligence, to show that the particulars on which his calculations have been erroneously grounded were furnished to him by his employer. It is his duty to inspect, to test, and verify all data which may be supplied to him, if on the correctness of those data the success or failure of his work depend. Hence, an architect, having been employed by a committee to erect a bridge, it was held that he was bound to ascertain for himself *by personal experiment* the nature of the soil; although a person previously appointed by the committee for that purpose communicated to him, by their express desire, the result of his inquiries.*

Nor can an architect establish any claim in respect of his services, when, either through neglect or ignorance, his calculations have been proved erroneous, and his estimates deceptive. Indeed, it is a general and most equitable rule that no agent can demand remuneration as for work and labour done, unless the principal derives some benefit from his assistance.† Common sense will accord its approval to that dictum of the law which declares want of competence or want of candour to be equally unworthy. Hence an architect, who, by means of a grossly incorrect estimate, induces his employer to undertake work which cannot be completed otherwise than at a much greater expense than was originally contemplated, is not entitled to recover any thing for his trouble, either in the making of such estimate—or for the execution of the works performed thereunder—or for any services connected therewith.‡ In such a case—that is to say, when the estimate is utterly erroneous and deceptive, no remedy is given to the architect in action upon *quantum meruit*; since the defendant may, without notice, and under plea of the general issue,§ reduce the damages "by showing that the work was improperly done; and may entitle himself to a verdict by establishing its total inefficiency."‖

The words of Mr. Justice Le Blanc applied to an analagous case,¶ may be quoted as forming a very appropriate summary of the points involving the necessity for the exercise of a fair degree of skill and care by an architect, for, as he observes, "the plaintiff must be prepared to show that his work was properly done. If a man contracted with another to build him a house for a certain sum, it surely would not be sufficient for the plaintiff to show that he had put together such a quantity of bricks and timber in the shape of a house,

* *Moneypenny* v. *Hartland*, 1 C. and P., 382; 2 *id.* 378 S. C. on second trial.

† See *Stewart* v. *Kayle*, 3 Stark, 161; *Hamond* v. *Holliday*, 1 C. and P., 384.

‡ *Moneypenny* v. *Hartland*. Ante.

§ *Chitty on Cont.*, 569; *Denew* v. *Deverel*, 3 Camp. C., 451; and *Farnsworth* v. *Garrand*, 1 Camp. 38.

‖ *Baillie* v. *Kell*, 4 Bing. N. C., 638.

¶ *Basten* v. *Butler*, 7 East—479 and 484.

if it could be shown that it fell down the next day; but it ought to be shown that he had done the work according to his contract; and it is open to the defendant to prove that it was executed in such a manner as to be of no value to him."

The contract thus implied by the law to be incumbent on architects in common with all other professional men, being that they will exercise a reasonable amount of skill and care in the performance of their duties, any dereliction from these implied obligations will incapacitate them from recovering the remuneration otherwise usually accorded to their services.

Nor is an architect liable only for his own personal default. Being individually and personally trusted by his client, he is responsible also for those whom he employs in situations of a subordinate character; and therefore for his clerk of the works. No employment requiring skill or discretion can be legally delegated to another.* Nor would the fact of the employer undertaking to pay such clerk of the works discharge the architect from his liability. The subordinate is still regarded as the mere deputy or representative of his superior, who would be bound for his competency, and answerable for his conduct, on the principle of the ancient maxim *qui facit per alium, facit per se.* The architect receives remuneration for his superintendence of the works, nor would his delegation of that duty to another person, nor his neglect to keep a strict watch over that person's proceedings be covered even by the proof that such an arrangement had been well known to, or approved of, by his (the architect's) employer. Such an appointment would be purely vicarial. The clerk is a mere agent of the architect, who ought to be, and hence impliedly becomes, the accredited judge of and guarantee for his proficiency.

Our course of reading has not furnished us with any judicial decision, especially applicable to this particular point. The dictum here by analogy laid down may, however, be received with confidence.† The practice of the profession is such as to show that it admits the responsibility. Of the many cases that might be cited in support of this view, one of the most remarkable as well as more recent may suffice.

An architect superintended the erection of a chapel from his own designs, and in due course received his commission-charge upon completion of the works.

Some few years had elapsed when some material defect manifested itself in the subsidence of the roof. On examination, it appeared that the original construction of the roof, as designed by the architect, had been varied by the builder, either with the consent, or through the carelessness of the clerk of the works, and that the default now becoming apparent, had been occasioned by these variations in its construction. The architect, at once acknowledging his liability, defrayed the costs of reinstatement.

When the architect's certificate is made a conditional precedent to the payment of a builder's bill, the latter cannot recover in an action without producing it; and this will be the rule whether such action be brought upon a contract or on an *ad valorem* charge. It is the usual practice to make the architect's certificate a condition precedent to payment in every builder's agreement; and in such a case, an account, the items of which are merely checked by the architect, and by him forwarded to his employer, will not amount to a certificate sufficient to satisfy such a condition, and to give the builder right of action.‡ The certificate must state decidedly and unequivocally that the builder is entitled to a certain sum of money.

But although the architect's certificate is thus, in the great majority of cases, rendered necessary to the builder before he can recover his demand, he is not utterly without remedy when that certificate has been unfairly withheld or unreasonably refused. It seems certainly very doubtful whether any action at law could be sustained against an architect to compel the granting of a certificate. But a bill in chancery might be filed to enforce the special performance of that portion of his duty; and unless he could then show satisfactorily that his refusal was justifiable under the peculiar circumstances of the case, he would undoubtedly be desired to grant it. Until, however, it has been procured by some means, and is produced, it is quite clear that no action can be maintained, unless it can be shown that the defendant himself prevents the plaintiff from complying with the condition; or that the condition itself has become impossible of fulfilment, as in the case of the death of the architect.* The hardship entailed upon the plaintiff, by making the doing of an Act by a third party essential to complete his right of action, forms no just ground for complaint, since he himself voluntarily assented to the contract upon these terms; and having once agreed to such a stipulation, he will not be allowed afterwards to repudiate it, simply because it has become inconvenient.

The remuneration of an architect has long been a *vexata quæstio*. Nor has the law laid down any fixed principles by which it may be generally estimated. The profession have endeavoured to establish a customary scale of charges by commission on the outlay, amounting in the aggregate to five per cent.,† generally subdivided thus,—

Plans.....	1¼	per cent.
Estimate	1¼	,,
Specification.....	1¼	,,
Superintendance ..	1¼	,,

This scale, however, has never been recognised in our courts. Indeed, it is questionable whether it should be so recognised, at least in its details, which, although promulgated by those who rightly ought to be the fittest judges and protectors of their own interests, are manifestly unequal and unjust. Surely the study, thought, and time bestowed upon the preparation of a plan worthy to be adopted, and fit to be exactly carried out, is worthy of a higher reward than the per centage here accorded it. Again, the specification is a work of labour, to which the estimate is merely supplementary. Least of all is the superintendence entitled to the same remuneration.

The courts have long and pertinaciously endeavoured to avoid a recognition of this percentage principle; and even its most strenuous supporters must allow that some objections to it stand upon a broad and stable basis. In such a standard of remuneration (say its opponents), the architect engaged to guard the interests of his employer finds a direct incentive to neglect, if not to treachery. His profit is proportionate to the expenditure, not to the saving. His wits are exercised in daily contravention of his own interests. All his experience is directed to his own detriment. His honesty can be rewarded only by a correspondent diminution in its recompense. Perpetual self-denial only entails continual self-sacrifice; whilst the temptation is at once certain in its realisation, and secure of its enjoyment.

To these most matter-of-fact and plausible objections, it is but an indifferent reply to urge that every architect acquires reputation, and its consequent advantages by the economy which he exercises in the execution of his designs. This is a proposition which experience has failed to prove. Even were such success the certain and unfailing consequence of uniform adherence to the strict path of duty, many would still be found more anxious to secure immediate advantage, than to live on in faith of fame deferred. The world must change its ways much before honesty becomes the rule, and want of it, the exception.

Faulty, however, as we all must acknowledge the per-centage principle to be, and determined as has been the opposition of the legal authorities to its establishment; it finds general favour with the public, and is practically adopted by all juries. Lord Denman, in a recent case, ‡ in vain inculcated his anti-commission doctrines upon the jury, who, nevertheless, gave the prescribed commission on a *quantum meruit* count; and on a subsequent motion for a new trial, the court refused to nullify the verdict. So, in a similar case* before Lord Ellenborough, that eminent judge left it to the jury to say whether the mode of charging by commission was vicious or unreasonable, and if they thought it so, to deduct from the damages accordingly. But, although he hinted his own disapprobation of the principle, the jury sanctioned it by giving the plaintiff a verdict for the full amount of his claim. Lord Kenyon held that a commission-charge was not recoverable as such.

Amongst the various suggestions which have been lately put forward as actually tested by successful practice, is that of a direct establishment of a contract between the parties, by the delivery of a card of terms at the time of engagement. This remedy, however, seems worse than the disease. No professional man would wish to commence an acquaintance with a collision so immediately in view—whilst such an intimation of suspicion must be equally distasteful to his employer. It might, perhaps, place architects on higher ground with their employers, and certainly it would be more just to themselves, if the per centage were attached to the estimated, instead of the actual cost. Such an arrangement could in no manner prejudice the client, whilst the architect would feel a double pride in exercising his disposition for economy, when certain of its full appreciation, and many bickerings would be removed from both. In default, however, of the substitution of some better and more equitable scheme for that which now exists, architects must rest content with the per-centage system; nor will they generally be disappointed in submitting their fair claims under that customary compensation to the decision of a jury.†

The architect's right to remuneration accrues, in case of an express contract, only upon completion of his duties. Such remuneration being contingent on benefit to be derived by the employer from services rendered, no reward will be due until the employer has actually obtained some definite advantage.‡ Where, however, the contract is only implied and not expressed, the architect will be justified, after the expiration of a reasonable time, in refusing to continue his labours unless he be paid a sum on account proportionate to the work already performed.§ He may, moreover, on refusal, throw up his engagement, and recover to the extent of such work, on *quantum meruit.*‖

The practice of competition having of late been much extended, it may be well here to observe that there does not appear to be any copyright in architectural designs.¶ Nor can any remuneration as for work and labour done, be recovered from any committee or individual who may have advertised for plans and estimates to be sent in upon the usual terms of competition. Architects thus invited to submit designs for any particular object, and complying with such invitation, are altogether without remedy in respect of compensation for the time and labour bestowed upon them. And this, even although the amount of reward may be specified, and the particulars and requisitions of the parties advertised strictly adhered to. Nor is it incumbent on the advertisers to select any one design, to justify their exclusion or rejection of the others; since the parties soliciting the competition have impliedly constituted themselves

---

* *Ess* v. *Truscott*, 2 M. and W.—385.

† On this subject see also "Story on Agency," pp. 12-14.

‡ *Morgan* v. *Birnie*, 3 M. and Sc. 76—9; Bing. 672. See also *Worsley* v. *Wood*, 6 T. R., 710; and *Bradley* v. *Milnes*, Bing. N. C., 644; 1 Scott, 626—697.

* See *Holkam* v. *The East-India Company*, 1 F. R., 638; *Davis* v. *Mure and Others*, cited id. 642; and *Jones* v. *Berkeley Douglas*, 665.

† The fire-offices pay their surveyors 5 per cent. on all works executed, and 2½ per cent. on all works estimated, but not executed; the examination of premises, &c., being covered by a salary.

‡ *Mayor* v. *Ward*. 10 *Jur.*, 796.

* *Chapman* v. *De Tastet*, 2 Stark, 291.

† In fact, the remedy rests with those whose interests are said to suffer most under the existing state of things. When the Society of Auctioneers found their proceedings hampered by the difficulty of establishing a general and satisfactory scale of charges, the most influential men amongst them met together, and having drawn up such a scale as they considered fair, put it forth for the adoption of their brethren, as the scale which they would invariably adopt, and which they were ready and willing to support by their evidence as fair and reasonable. Why should not the architects adopt a similar course?

‡ *Hughes* v. *Lenny*, 5 Mee. and W., 183—and *Rees* v. *Lines*, 8 C. and P., 126. Coleridge.

§ Architects engaged on large undertakings are usually paid 5 per cent. on the amount of the builder's bills, certified by them in the progress of the works.

‖ *Roberts* v. *Havelock*, 3 B. and Ad., 404.

¶ It does not appear that any copyright is reserved to *pictures*. Strange as the omission may seem, the invention is left unprotected, whilst the publication of the invention (by means of an engraving) vests a right in either publisher or author, under the 7 Geo. III., c. 38.

sole judges whether any remuneration has been merited or not.*

A striking case of this kind recently occurred. A committee having advertised for competition plans, to be designed in accordance with certain detailed particulars, received several. Of more than twenty which were offered, one design only was in strict accordance with the instructions issued; and the committee chose one which was utterly and altogether in direct contravention of their own prescribed rules. The architect who had conformed to the instructions consulted counsel on the merits of his case, and was advised that he had no apparent remedy, since he was altogether dependent upon the good faith of the committee, who might vary their rules at pleasure, and, in default of any express contract, might make their own selection, however unjustly, without incurring any responsibility in respect of other parties. G. Tattersall.

PROFESSOR COCKERELL'S LECTURES ON ARCHITECTURE.

The third lecture of the course at the Royal Academy was given on Thursday, the 18th ult. On the previous occasion the professor had shown that, in regard to fitness and conception, nature was ever the great mistress of our art, and, by instances from the practice of Brunelleschi and of Wren, the advantage of copying from the original, rather than from copies, as we were so apt to do. The analogies he had then given were mainly in reference to structure, but were equally to be discovered in what related to beauty, and he proceeded to show this analogy in the cases of straight and curved lines.

In arriving at this part of his subject, he spoke of the conceit shown in admiring the work of art, simply from its being such, and neglecting to appreciate the beauty of a corresponding production of nature. For example, in some kinds of stone was a fossil of beautiful spiral outline, called the *cornu ammonis*. Discovered on the face of some one of the stones of a garden wall, it would attract little attention. But, if this beautiful spiral were known to be a work of art, great would be the interest excited by it. There would be much discussion as to its origin, and much speculation as to the mode of generating the curve, and we might be certain that afterwards, no other form of volute would be used but this. Whilst in the wall, the simple gardener would almost ask pardon for presuming to admire any thing so ordinary; but considered as a work of art, it would be rated beyond all price. As ascribed to nature, it was a matter of course,—to art, a matter of wonder.

The professor also noticed the beauty of form and structure in the common *echinus*, or sea urchin, and showed how suggestions might be taken from it, for the form and decoration of domes. If compared with any existing domes—for example, such as had any surface decoration, as in that of the Invalides at Paris—how vastly superior was the work of nature.

Thus, in some of the most pleasing works of art, we discovered the delightful freshness of nature. If we drew from the Grecian honeysuckle, we felt that it was an adaptation from nature. In the cornice of the nave of York Cathedral, we found an ornament which was, in fact, the common savoy-cabbage without disguise. In the capitals and other carvings we discovered the foliage of hedge-rows. Everywhere we had the evidence of the presence of nature, and eulogised the work as "just like nature." Now, if thus we were always so reminded of nature, we could not but regard the labours of those who added to the knowledge of her as useful to our art. It was not to be wondered at, that a notion had prevailed that the old schools had been consulted *usque ad nauseam*, and been worked out, whence aspirations after dangerous novelty, and the idea that the powers of science exceeded those of art, now shown to be erroneous views. As Pope said,—

> "Learn hence for ancient rules a just esteem,—
> To copy nature is to copy them."

The professor then proceeded to give instances of the universality of the influence, found in the different fashions of architecture, in contradistinction to the structural part of architecture, which altered with the progress of science. Amongst these instances were noticed right lines, angles, curves of mouldings, scrolls, spirals, and volutes, and the conic sections.—In illustration of the effect produced by a simple line, he sketched the line of the horizon on the ocean, contrasted with the rocky scenery of the coast. It was, he said, from the tranquil sublimity of this line, breaking in extended length on the view of the Grecian soldiers, in a foreign land, which made them exclaim *θαλασσα, θαλασσα*, as much as because they there beheld the road by which they might reach their native country. It was the maritime situation of Greece which made the horizontal line so delightful to her people, and the contrast of the low long line of the Grecian temple with rocky scenery excited our admiration in the architecture of Athens, as also in Agrigentum, where the energy of the long lines of the architecture would be confessed by every one. The too frequent breaks, often found in later styles, were apt to give feebleness, and what he might call collapse, to architecture so broken up. The works of the Adams might be instanced as indicative of this effect, which was seen in Stratford-place, Oxford-street. The best works of the Italian architects were remarkable for their length of line, as in the Library of St. Mark, at Venice, and the Farnese Palace. A change to a broken effect, however, took place, and the altitude affected in the thirteenth century no doubt influenced the departure from the horizontal. It was seen in the works of Michelangelo, and also in those of Sir Christopher Wren. It would seem as though the horizontal and vertical systems had gained prevalence by turns.

When a building was seen in oblique perspective, there was no doubt, the professor said, that the horizontal principle was the important one to be observed, and the Library of St. Mark was so circumstanced. But, in parallel perspective, as when a building formed the termination of a street, the vertical principle was desirable, and it was therefore correctly employed in the triumphal arches; and, in the case of the façade of Guildhall, any other than the vertical character would have been inappropriate.—The same contrast and variety which proved the charm of the low building in elevated districts, dictated the choice of lofty outline and vertical character in flat countries, and it was merely the natural impulse for the Assyrians to exclaim—"Let us build a city and a tower, whose top may reach unto the heavens." The recollection of such objects and emotions would explain much that would otherwise be perplexing in the history of architecture.

In continuing the subject of contrast of lines, he alluded to that afforded by lines placed at angles, and made some interesting remarks on the value of the pediment in design. He referred to the absence of this feature in Egyptian architecture, as supplied by the pyramid, and by pyramidal inclination in certain portions of the buildings, noticed the use of pediment amongst the Greeks, and thence passed to the use of sculpture in pediments, and the general treatment of this branch of the art in Greece. It was the aim of the architects here, he said, constantly to carry out this same principle of contrast, as evidenced by the general tendency of the lines of the groups in the pediments, and of the figures of the metopes, contrasted with the lines which enclosed them. The professor illustrated this part of his lecture by some clever sketches on the board, and amongst other remarks, he attributed the introduction of sculpture in the metopes, and the general tendency of the lines in the groups, to the desire to get rid of the square form of these spaces. He remarked that lines at right angles were avoided by the engraver, and instanced the effect of masonry set in cubes, to shew the deformity which there was danger of, in an art in which construction naturally led to the effect produced by right angles, and which was avoided in the entablature of the Doric order, by the introduction of sculpture; and he referred to what has been called "decorative masonry," carefully attended to by Palladio and others, as intended to obviate the defect of lines.

The professor then passed to the consideration of circular and curved lines. He compared the beautiful form of the rainbow with the appearance of the arch in passing under a bridge, and noticed the constant use of circular forms amongst the ancients, as seen in the apse, so often found in the Roman baths, and in the basilica of Trajan—a building of a size so vast that it would have enclosed the whole section of Westminster Hall, buttresses included. In the buildings of Paris, he remarked that there were several instances of the successful use of circular forms: in this country, their beauty had been scarcely attended to as it might have been, but he instanced Inigo Jones's projected Persian court at Whitehall. and the plan of the tower of St. Vedast's Church, Foster-lane. In the square tower, and other portions of buildings, we had a constant use of angular forms, but it could hardly be doubted that at some time to come the tendency would be again in favour of the circular styles. Amongst the ancients, he instanced the constant recognition of the beauty of these forms, as in the tholus of the Greeks, in the dome of the Pantheon, and in the form of the column, especially when in contrast with the pilaster. In mouldings—as in the torus and cavetto—nothing could be admitted as so essential, for all the beauty of mouldings lay in the beauty of contrast; and it was the contrast of the curves and hollows with the straight lines, and the contrast of size in the different features, which made the beauty of the human profile. In the contrasted size of the ovolo and bead under it, we had the charm produced by proportion and quantity. When, as a youth, he first saw a certain combination, which he delineated, of a plain fascia with a crowning and bed moulding, he was at once struck with the beauty which was produced, by consideration of quantities. If these combinations struck the young mind, they must be beautiful, for *it* came nearer to nature than the old mind, oppressed with business, or wrought with care.—He also instanced the use of large with small columns, and the defect in one part of the 13th century, where the mouldings were all resembling each other. He then alluded to the other circular forms,—as the cyma, or line of beauty, and the scroll,—remarking upon the subject of ornaments, that these should always take the form of the moulding which they were intended to decorate.—In speaking of the value of the conic sections, he showed that the cone gave us the lesson of the pyramidal form, applied in the spire and pyramid. Gradation in form was as essential as in colour. Diminution in objects was a natural desire, and was made to take place *from* the eye, as in the spire of a church, and the leg of a table. It had been lately certified, that the axes of the columns in Grecian temples inclined towards the cella. He also compared the treatment of the curves of mouldings by the Greeks and by the Romans. Venus was held to have two natures, to one of which there was no corporeal resemblance. She was worshipped under the form of a cone, the type of beauty. Finally, the professor said, he did not broach any new doctrine, but he recommended the recurrence to nature on all occasions, by which, in proportion to its attention to such system, each school had been successful, and he might say, in the words of Pope,—

> "First follow nature, and your judgment frame
> By her just standard, which is still the same:
> Unerring nature, still divinely bright,
> One clear, unchanged, and universal light,
> Life, force, and beauty, must to all impart,
> At once the source, and end, and test of art."
>
> * * * * *
>
> "Those rules of old discover'd, not devised,
> Are nature still, but nature methodized:
> Nature, like liberty, is but restrain'd
> By the same laws which first herself ordain'd.
> Hear how learn'd Greece her useful rules indites,
> When to repress, and when indulge our flights:
> High on Parnassus' top her sons she show'd,
> And pointed out those arduous paths they trod;
> Held from afar, aloft, the immortal prize,
> And urged the rest by equal steps to rise.
> Just precepts thus from great examples given,
> She drew from them what they derived from Heaven.
> The generous critic fann'd the poet's fire,
> And taught the world with reason to admire."
>
> * * * * *
>
> "When first young Maro, in his boundless mind
> A work to outlast immortal Rome design'd,
> Perhaps he seem'd above the critic's law,

* *Taylor* v. *Brewer*, 1 M. and Selw. 210.

And but from nature's fountains scorn'd to draw:
But when to examine every part he came,
Nature and Homer were, he found, the same.
Convinced, amazed, he checks the bold design,
And rules as strict his labour'd work confine,
As if the Stagyrite o'erlook'd each line.
Learn hence for ancient rules a just esteem,—
To copy nature is to copy them."

GREENWICH HOSPITAL—IRON BEAMS.

ROYAL INSTITUTE OF ARCHITECTS.

AT a meeting held on Monday, the 23nd ult., Mr. Bellamy in the chair, a number of donations were announced, including Mr. Warrington's new volume on stained glass, from the author, a handsome present, and a number of the original drawings for Greenwich Hospital, with Hawksmoor's signature upon them.* The latter were presented by Mr. Francis Dollman, and were justly considered by the members a valuable addition to the folio. One of the drawings is very interesting, as shewing a plan for the completion of the centre.

Mr. Bailey, honorary secretary, said, that knowing these drawings were to be presented, he had looked at Evelyn's "Diary," amongst other books on the subject of Greenwich Hospital, where he found some memoranda, which seemed to him interesting. He then read the following extracts from that work:—

May 5, 1695. I came to Deptford from Wotton in order to attend the first meeting of the commissioners for endowing an hospital for seamen at Greenwich. It was at the Guildhall, London. Present—The Archbishop of Canterbury, Lord Keeper, Lord Privy Seal, Lord Godolphin, Duke of Shrewsbury, Duke of Leeds, Earls of Dorset and Monmouth, Commissioner of the Admiralty and Navy, Sir Robert Clayton, Sir Christopher Wren, and several more.

May 17. Second meeting, and a committee appointed to go to Greenwich to survey the place, I being one of them.

May 21. We went to survey Greenwich, Sir Robert Clayton, Sir C. Wren, Mr. Travers, the King's surveyor, Capt. Sanders, and myself.

24. We made a report of the state of Greenwich House, and how the standing part might be made serviceable at present for 6,000*l.*, and what ground would be requisite for the whole design. My Lord Keeper ordered me to prepare a book for subscriptions, and a preamble to it.

31. Met again. Mr. Vanbrugh was made secretary to the commission by my nomination of him to the Lords, which was all done that day.

June 7. The commissioners met at Guildhall, when there were scruples and contests of the Lord Mayor, who would not meet, not being named as one of the quorum, so that a new commission was required, though the Lord Keeper and the rest thought it too nice a punctilio.

14. Met at Guildhall, but could do nothing for want of a quorum.

July 5. Met at Guildhall; account of subscriptions about 7,000*l.* or 8,000*l.*

June 30, 1696. I went with a select committee of the commissioners for Greenwich Hospital, and with Sir C. Wren, *where with him I laid the first stone of the intended foundation, precisely at 5 o'clock in the evening*, after we had dined together,—Mr. Flamstead, the King's astronomical professor, observing the punctual time by instrument.

July 4. Note. That my Lord Godolphin was the first of the subscribers, who paid any money to this noble fabric.

The subscription list given by Evelyn amounts to 9,046*l.* 13s. 4d.

Amongst the subscribers are, the King, 2,000*l.*; Archbishop of Canterbury, 500*l.*: Lord Keeper Somners, 500*l.*; Lord Godolphin, 200*l.*; Sir Stephen Fox, the Paymaster of the Forces, 200*l.*; Lord Chief Baron Wood, 66*l.* 13s. 4d.

Nov. 4, 1696. Expense of the work already done was 5,000*l.* and upwards, towards which the treasurer had not received above 800*l.*, "so that they must be obliged to stop the work unless there can be a supply of money both from the several noblemen and gentlemen."

It was announced that a folio work, in twenty-one volumes, illustrating buildings, paintings, masques, &c., had been purchased by the honorary secretary for the Institute, at the sale of the Stowe library. From the transient glance we had at one of the volumes, this seems to be a valuable acquisition. We shall make acquaintance with it,—for the advantage of our readers.

Mr. Olinthus Donaldson, in the absence his father, then read "A Description of the Malleable Iron Beam-bridge, constructed in 1839, over the Polloc and Govan Railway, on the Carmunnock-road, near Glasgow, by Mr. Andrew Thomson, engineer."

The chairman, with reference to girders constructed of boiler plate, said a difficulty presented itself to his mind in the general use of rivets rendered necessary by the shortness of the lengths of iron, inasmuch as they were liable to be loosened, and when so loosened formed the germ of destruction. Information on the subject of iron girders was much to be desired, and would, he hoped, be contributed by members.——Mr. Pocock wanted to know how such girders were to be repaired when they became dilapidated?

Mr. Fowler observed that it was worth mention that the official referees, in reporting on buildings wherein cast-iron girders were used, always thought it necessary to warn parties against their uncertainty.——Mr. Jennings said that, on examining an iron aqueduct which had failed, he found the defect was in the masonry and brickwork rather than in the ironwork, and that this had probably been caused by the contraction and expansion of the metal.

Mr. Papworth said it was a curious fact that in Southwark-bridge, which was one of our most important iron bridges, no preparation had been made at first to admit of the expansion and contraction of the ironwork, and that it became necessary, in consequence, to cut through the granite at the abutments afterwards, at a greatly increased cost. He understood that the iron of this bridge flaked off in pieces of considerable size.

Mr. Godwin thought it scarcely necessary to mention that, for large spans, cast-iron girders were out of the question; and that even as regarded small spans, the fact that firemen were more fearful in entering a building when on fire, where the walls were carried on cast-iron, than they were in a building where the girders were of wood, showed that consideration was necessary in their use. He described Mr. Porter's corrugated iron beams (mentioned in our last number), thought them deserving of investigation by those who needed iron beams, and re-urged the suggestion made by Mr. Thomas Cubitt, in the report on the mill at Oldham, that Government should offer premiums for machinery for producing large wrought-iron girders.

Mr. Barry, jun., described an invention recently patented, and on which he had seen experiments, wherein the whole floor formed a single beam, so to speak; there was boiler plate, top and bottom, connected by a web of the same material, if we understood rightly, and filled in solid with concrete. The concrete, though its weight was objectionable, had the advantage of making the floor fire-proof.*

Mr. G. Jennings, by permission of the meeting, afterwards explained the construction of his new water-closet.

NEW COAL FIELD.—We are informed it is intended to open coal fields in the neighbourhood of Bristol.

DINNER OF THE INSTITUTION OF BUILDERS' FOREMEN.

THE anniversary dinner of this institution took place on Wednesday, 31st ult., at the Bay-Tree Tavern, St. Swithin's-lane, City, Mr. G. Godwin, architect, presided, and Mr. Crosse, in the absence of Mr. Thomas Allom, through illness, was in the vice chair. The attendance was very numerous, and included several of the master builders of the metropolis. Letters were read from Professor Cockerell, expressive of his interest in the institution; Mr. Moseley, architect (with donation of one guinea), Mr. Biers, Mr. Allom, with donation;* and other donations were announced from Mr. Bunning, architect, Mr. Piper, Messrs. Locke and Nesham, Mr. T. Patrick, and others. The Patent Dessicating Company sent the very handsome sum of 5*l.* towards the provident fund.

We are anxious to aid what seems to us a very useful institution, and in giving the gist of the chairman's remarks, when proposing the principal toast of the evening, it may be taken as the expression of our own opinions. He congratulated the meeting on the receipt of the letters already mentioned, as indicating that the objects of the Institution were becoming better understood, and that the feeling of distrust was gradually disappearing. The objects of the Institution were two-fold, benevolent and social,—to provide against illness and misfortune (to purchase or erect an asylum hereafter), and to obtain for foremen and clerks of the works, whose position is necessarily somewhat isolated, the advantage of intercourse with men of their own occupation, and the opportunity of discussing points of construction and gaining information. The Directors repudiated any interference between master and man, any attempt to coerce wages: they desired but to aid themselves, and hurt no one else. An anecdote occurred to him which might not be considered irrelevant. It was said that when the Emperor Augustus was passing through the baths at Rome on one occasion, he saw a veteran who had fought with him rubbing himself, after bathing, against one of the columns. The emperor inquired why he had not a boy to do this? and being told that he was too poor, ordered him the means of paying one. On his next visit he saw at every column an old man rubbing himself; and on making the same inquiry he received the same reply. His rejoinder, however, was not what they expected; for he said,—Well, gentlemen, as there are so many of you, I should advise you to *rub one another*. Augustus here taught them sound wisdom; he taught them not to depend on the caprice of a patron, but to help one another. And this, the speaker continued, was what the members of the association were trying to do; and when compelled by illness or distress to receive aid, they might regard it as simply a return for money invested by themselves when the sun shone. The working men of England, by their conduct in the late crisis, when the working men of other countries had been levelling others instead of trying to raise themselves, had entitled themselves to the respect of the upper classes; the men had wisely seen that the interests of the employer and the employed were the same, and that injuring their masters was not the way to benefit themselves. That the good feeling which now prevailed might increase; that knowledge might spread; and that every man might find employment, was his earnest wish. He thought the masters would do well to aid this institution more than they had done; and then the general public, when they saw this, would give their aid too. In the name of the committee he asked the public for this assistance; and he invited those present to drink with hearty expression of good will,—

"*Success to the Provident Institution of Builders' Foremen.*"

* The following is from Walpole's "Anecdotes of Painting:"—NICHOLAS HAWKSMOOR (born 1666), at 18 became the scholar of Wren, under whom during his lifetime, and on his own account after his master's death, he was concerned in erecting many public edifices. He assisted in conducting the works at St. Paul's to their conclusion. He was deputy surveyor at the building of Chelsea College, and clerk of the works at Greenwich Hospital. He designed several of the new churches in the reign of Queen Anne, viz:—St. Mary Woolnoth, in Lombard-street; Christ Church, Spitalfields; St. George, Middlesex; St. Anne, Limehouse; St. George, Bloomsbury. He also built part of All Souls' College, Oxford; a mansion at Easton Neston, Northamptonshire: and assisted Vanbrugh at Blenheim and Castle Howard. He died March 25th, 1736, aged 70.

* The recent destructive fires should aid in leading to the adoption of fire-proof constructions. 25,000*l.* is spoken of as the amount of the loss by the fire in New-square, Lincoln's-Inn, and numerous deeds, court rolls, &c., were burnt which cannot be replaced. The fire at Irongate wharf destroyed a large amount of property. The buildings burnt down were 90 feet by 60 feet, and contained machinery of great cost.

* Mr. Allom said,—"That while all connected with the business of building must acknowledge the extreme value of the class for whose benefit this meeting takes place, it will be of the utmost importance to the future success of the institution, that it should endeavour in every possible way, to exercise a moral influence over all its members; and that master builders, instead of dreading combination against their interests, may feel that in each member of the institution, they may depend on a trustworthy, efficient, and honourable assistant. That, from the intimate connection existing between each individual foreman, and the best interests of the builder, the architect, and the employer, such qualities cannot be over-rated, and will require that the institution should be only more fully known to ensure its unequivocal and complete success."

ALTAR TOMB IN EXETER CATHEDRAL.

(EARLY ENGLISH.)

FIG. 1

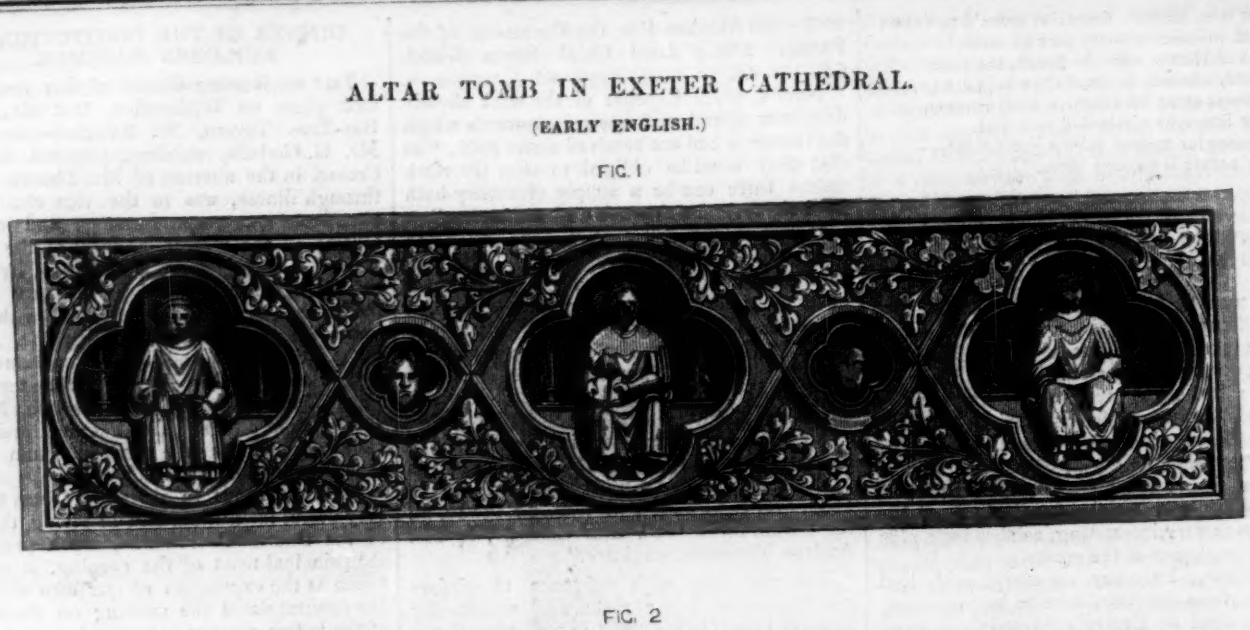


FIG. 2

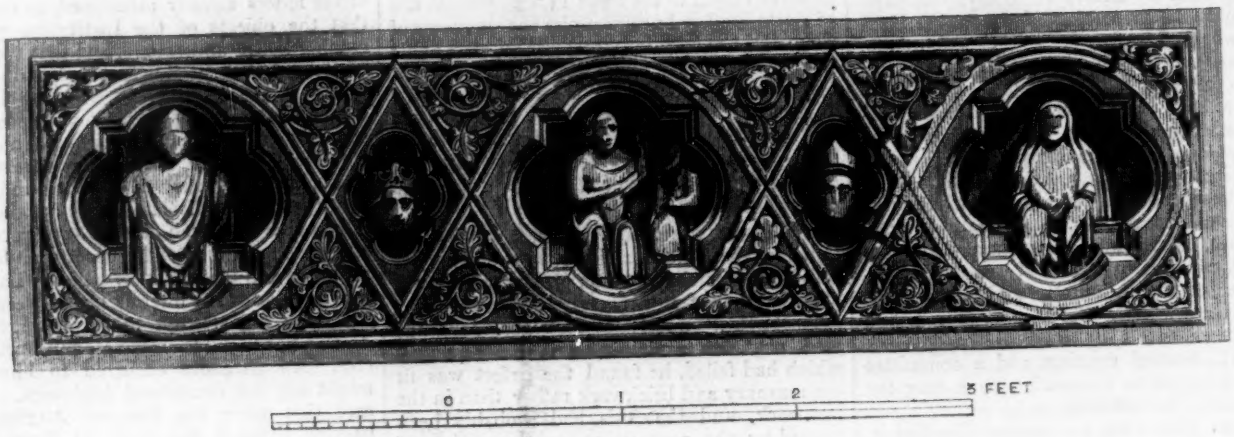


FIG. 3

FIG. 4

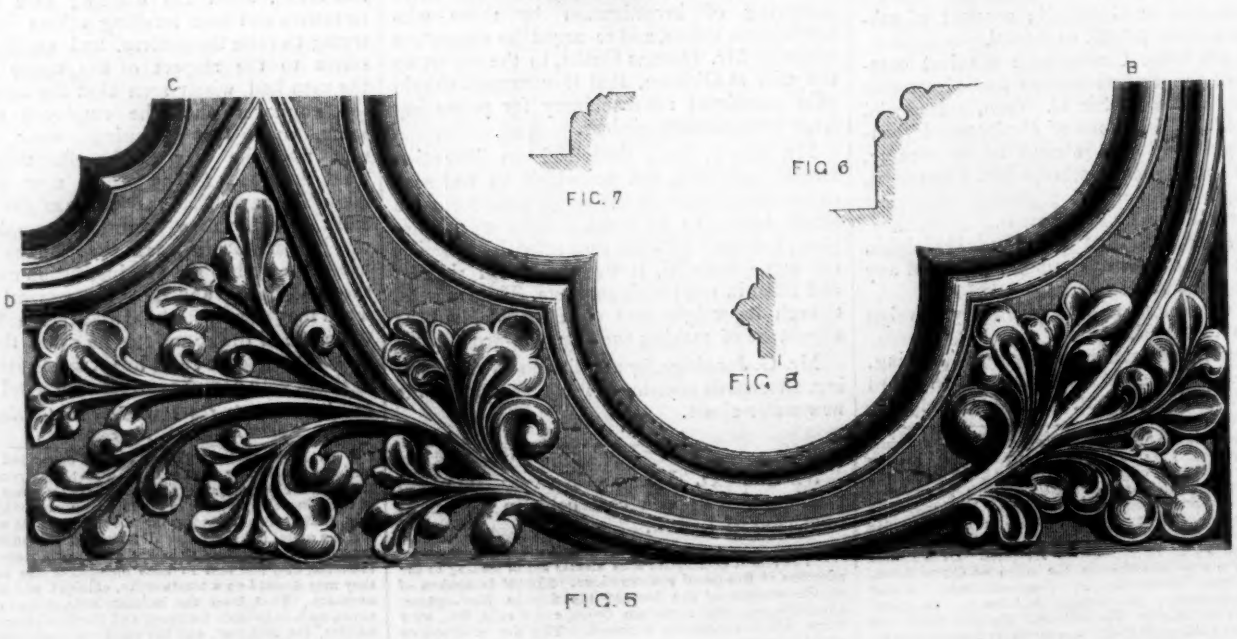


FIG. 7

FIG. 6

FIG. 8

FIG. 5

ALTAR TOMB IN EXETER CATHEDRAL.

THIS very beautiful specimen of early English work (supposed to be the tomb of Bishop Marischall, who died in 1206), is placed under one of the arches separating the north aisle and choir: it appears to be of more ancient date than that part of the cathedral in which it stands, said to have been begun by Bishop Quivil, between 1281 and 1291.

The tomb, constructed of Purbeck marble, is much decayed; it is surmounted by a quaint and stiffly-carved effigy of the bishop, in a kind of trefoil headed niche; one hand holds a crozier, the other is raised in the act of blessing. The figure is very flat, as usual on monuments of the period.

Fig. 1 of the accompanying illustrations represents the north side of the tomb, and Fig. 2 the south side. Fig. 3 is a spandril ornament, between two quatre-foils, each containing sculpture in the west end, and Fig. 4 a section at A A.

The present east end is a plain slab, but is probably not the original: Fig. 5. a compartment of foliage from the north side: Fig. 6. section at B, Fig. 7. section at C, Fig. 8. section at D.

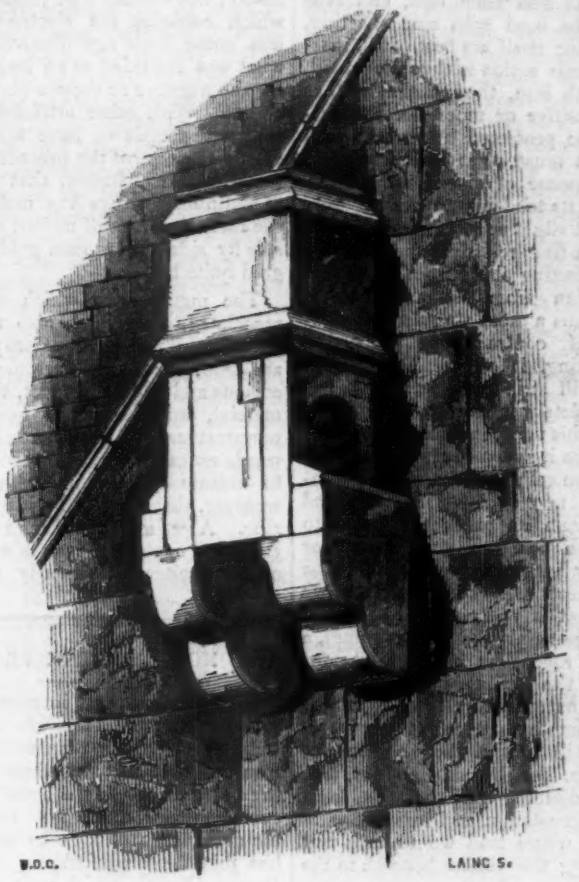
The details are drawn one-fourth the actual size. E. S.

DRAINAGE OF GUILDFORD.

ENGINEERING COMPETITIONS.

As the drainage of towns is becoming an important subject, perhaps an account of what is doing here may be interesting as well as instructive. The borough of Guildford comprises St. Mary's, Holy Trinity, parts of Stoke, Shalford, and St. Nicholas' parishes, that is the new borough,—the old borough, previously to its enlargement, consisted of the whole of St. Mary's, part of the Holy Trinity, and part of St. Nicholas' parishes. In 1812 an Act was obtained for paving, cleansing, improving, &c., which is now in existence, and its provisions are carried out by a board of paving commissioners, having power to raise certain sums for that purpose not exceeding in the whole 5,300*l*. Recently a committee of the commissioners has been appointed to inspect and obtain the removal of nuisances; and with a view to keep out of the operations of the Health of Towns' Bill, the committee advertised in THE BUILDER and in the *Times*, about the middle of December last, "That engineers be requested to furnish the best plan for draining the town of Guildford," as to surface drainage, and that also "engineers be requested to specify the best mode of disposing of the refuse contents of the sewage, whether into tanks," &c., &c.; for an effectual system of drainage for the town, and that "plans, specifications, and estimates be prepared by them in accordance," &c., &c.; the successful engineer to carry out the works, and obtain tenders within his own estimate, with the usual allowance of 5 per cent., and the committee not binding themselves to accept any one of the plans. Such an advertisement was calculated to bring forward men of ability and standing in the profession to compete; and on the 15th of January (the day appointed), nineteen plans, specifications, and estimates were sent in; but the committee had not the candour to allude at all to their limited Act of Parliament; they did not say to these gentlemen, that although we put forth that advertisement, we have no power beyond the old borough; neither did they say (which is the most important part) that they only had power to raise 5,300*l*., and that they were already in debt more than half that sum. Nineteen respectable engineers came forward, relying on the honour of the committee, and that they really meant what they said, that the competition would be fair, plans having to be sent in with a number or motto; and after great trouble, expense, and loss of time, have the mortification to find the committee have not the means to pay or power to raise a sum much over 2,000*l*., they having required engineers to furnish estimates, &c., for works amounting at least to from 6,000*l*. to 15,000*l*. Surely these nineteen gentlemen have been ill-used, and might claim remuneration for what they have suffered in pocket and in time. Y. Z.

CHIMNEY—ASLACKBY CHURCH, LINCOLNSHIRE.



A CHURCH CHIMNEY.

IN a late number there is a letter from Mr. Orford, about ecclesiastical chimneys: I inclose a sketch of one from Aslackby Church, Lincolnshire, which you may think interesting enough to publish. It is on the north side of the tower. The label seen in the sketch belongs to an arch now stopped up with a perpendicular facing; it is about 20 feet from the ground. The jointing of the chimney, though it has been complained of, is, I believe, correct. THOS. M. RICKMAN.

Birmingham.

ON THE NATURE AND PROPERTIES OF THE METALS USED IN THE BUILDING TRADES.

BRASS AND OTHER ALLOYS OF ZINC, &c.

ALMOST all the metals combine with zinc, and some of its alloys are of great importance. The most ancient and universal of them all, however, is brass, which, strange to say, was made and known for centuries by those who knew not that zinc, one of its two sole constituents, had even an existence,—that is, as a metal; although, as already remarked, the Chinese and Hindoos were an enlightened exception.

Brass has been most usually and easily made from copper and calamine, the latter an ore of zinc in which the metal is corroded and invisible, hence the ancient popular ignorance just noted. Strata or layers alternately of plate copper and of a mixture of calamine and charcoal,—the latter to absorb the corroding oxygen of the former; or a mixture of granulated copper and the same ingredients, exposed till red heated, enables the metallic zinc to volatilise, or rise in vapour, and penetrate, or unite with, the copper, so as at once to form, according to the relative proportions of the materials, either some one of the varieties of brass, or other of its kindred alloys, such as pinchbeck, prince's metal, tombac. Or these varieties may readily be formed, or brass modified, by afterwards uniting the alloy, once got, with additional proportions either of copper or zinc. The metallic zinc, however, may also be at once united with copper by fusion, but the operation is critical.

The authorities whom we have consulted differ greatly as to the actual or best proportions of zinc and copper for making brass. English brass, according to Parkes, consists of one particle or atom of zinc and one of copper; Dutch brass of one-zinc, two-copper. In the "Encyclopædia Britannica," however (supplement to latest edition) two of zinc to one of copper are stated as the best proportions. The heavier brass is, the more copper it contains, the lighter, the more zinc, as might be expected, zinc being the lighter metal. The specific gravity of brass, however, is greater than that of its separate metals. In Knight's "Cyclopædia" the process of formation, and the proportions of calamine, &c., are stated as follows—The copper is poured into water, and converted into shot copper, the metal being thus granulated into pieces from the size of small shot to that of a bean. Of this 45lb., to 60 lbs. of powdered calamine, and an equal quantity of charcoal, are put into earthen crucibles, and fire applied for seven or eight hours. By pouring the molten metal into shallow granite moulds, it is made to form plates of brass, which are afterwards rolled into thin sheets called latten. For bars, cast-iron moulds are also used.

Brass is more fusible than copper, and hence more easily cast. It is also much less liable to tarnish as well as considerably malleable and ductile, and may therefore be beat out into very thin leaves, and drawn into fine wire. The thin leaves called Dutch gold, or Dutch metal, are just brass beaten out into an imitation of gold-leaf. The 'yellow metal,' patented by Mr. Muntz, of Birmingham, and made into sheets thick enough for sheathing ships, in place of copper, is a composition of zinc (chiefly Belgian, we believe) and copper. Zinc itself, by the way, is now extensively used on the continent, and is even being introduced into this country, for a similar purpose.

Iron and zinc were, till lately, regarded as metals not easily united, on account of the volatility of the latter and the infusibility of the former. Dr. Graham, however, gave a different opinion: and, at all events, when plates of hot iron were dipped into a bath of melted zinc, it was found that an appearance of tin plate was acquired, and the iron thus prevented from rusting. This is the process

whereby "galvanized iron" is said to be prepared. And it is a curious fact, that when zinc is even merely kept in contact with iron, it will protect the iron from rust, and thus iron nails may be used with zinc sheeting, though nails of zinc itself are best of all, inasmuch as all galvanic action is thus prevented, whereas even with iron, though the iron, as the less electro-positive or more electro-negative metal, will be protected by an exaltation of the negative, it must, or at least would be, at some small expense of zinc, from an equivalent increase of its tendency to oxidize, were it not that the first slight scurf of grey oxide on its surface forms a firm, resistive, and complete coat of mail, protecting itself from all further injury by oxidation from ordinary causes. Zinc, in fact, is thus a most singular and anomalous mass of contradictory properties. Chemically speaking, it so greedily devours oxygen, that it will strip even iron of it, yet we see how completely it can protect its own substance from this very tendency to oxidize, and this, too, from its very strength of affinity for oxygen. Chemically speaking it is so combustible, that it may be made to burn and blaze; and yet from its practical power to cover itself with a firm though thin shell or crust of stony or glassy oxide, and from the much stronger heat required to melt it, we have no doubt that it will constitute (though not a fire-*proof* material like iron or stone), a safer covering for roofs than lead at least; for though, where the ordinary inflammables have already originated a conflagration, it will much rather promote than retard the blaze, yet certainly it will protect the woodwork of roofs from sparks, and burning embers, &c., contributed by adjoining conflagrations, both by its surfacial incrustation, and by its solidity in circumstances where lead would melt and disappear, exposing the timber beneath to the burning embers.*

Bronze is another of those alloys into the composition of which zinc essentially enters. Bronze is a composition of copper, zinc, and tin, and, like brass, is of ancient origin. Bronze vessels have been found at Nineveh and also at Herculaneum. With tin alone, too, zinc forms a useful alloy. In China and India various utensils and ornaments are made of zinc, inlaid with other metals. The 'white copper' of the Chinese is a composition of zinc, copper, and nickel, the zinc 7-16ths of the whole, and the remaining 9-16ths, of copper and nickel to each other as 5 to 13. The amalgam of zinc, or its alloy with mercury, is made by trituration in a mortar. This is the metaline substance which is spread over the rubber of the electrical apparatus for creating electricity by friction. The use of zinc, also, in the galvanic circuit in connection with copper, has been already noted; but we may here remark that cast-iron, which contains the electro-negative carbon, was some time ago discovered to constitute what was regarded as an important substitute for the negative or copper-plate in the galvanic circuit. With other artificial associations of zinc with metals we have still less to do than even with some of the preceding; but we may remark, in conclusion, that while 1-20th part of platinum destroys the malleability of zinc, the mere presence of molten zinc in a crucible, side by side with molten gold, will render the gold quite brittle.

The metals with which zinc is naturally associated, and which also tend, as well as sulphur, to injure or destroy its malleability, are iron, lead, and arsenic. Probably the curious and anomalous fact, that impure, commercial, brittle, zinc, if heated to a certain temperature, will become malleable, and afterwards remain so even while cool, is attributable to arsenic or sulphur, which the heat may separate, these being both more volatile than zinc. A writer, however, remarks, that "a small per centage of iron is what renders most of the spelter, particularly English, unfit to roll."

* A case of this very kind has occurred since these remarks were in type. We quote from the *Sun* newspaper:—"While the firemen were employed upon this fire (at Lincoln's-Inn) an alarm was given that another had broken out in Chancery-lane, and it was ascertained that *some of the burning flakes* had been wafted by the wind upon the roof of the law chambers, No. 77 in the lane, and *having melted the gutter, had come in contact with the timber underneath, and fired the roof.* When the fire brigade arrived with their engines, the flames were raging with such fury that the two roofs at the least were in great danger of being consumed." We may here append some remarks by a correspondent who writes to urge the superiority of the zinc produced by the Belgian mines, and says—With regard to its combustibility, zinc ignites only upon a blazing fire, and never when the flame merely passes over it. It is, therefore, not only "not capable of originating a fire," as you very properly state, but it will really act as a preventive to fire where the upper part of a house might otherwise be apt to take fire from a neighbouring conflagration; and this the more especially when the metal is properly laid on the roofs, that is, when the sheets are folded thus ⌐⌐ one over the other, which will exclude any draught. It is pretty well known that fire is communicated from one house to another through the interstices of the slates or tiles, and that slates at a temperature far below the melting point of lead (say 590 deg. Fahrenheit) split, and therefore afford every facility for the entrance of the flames, so that lead would be even preferable to slates on that account; but zinc resists the action of the flames at 700 deg. Fahrenheit; and of this there was a memorable instance at the great conflagration of Guadeloupe, when several hundred houses were destroyed by fire, but those which were covered with zinc escaped, almost entirely, amidst the flames. But there certainly exists a great difference in the quality of the metals termed zinc. The commercial zinc of England is generally an amalgamation, and, in consequence, very brittle; but it is an error, which prevails only in this country, to suppose that the [impure?] metal, when heated to 300 deg. Fahrenheit, becomes and afterwards continues ductile and malleable, like pure zinc. It is well known that all amalgamated metals are brittle, and will remain so whilst in that state. I know that even the best authorities in this country say that zinc becomes powderable at 300 deg. Fahrenheit, and might crumble by its own weight, and certainly that is quite a reasonable supposition in respect to zinc of an inferior quality—for an amalgam being composed of metals which are affected in different degrees by the action of heat, those metals which are most susceptible of its influence will melt first, and thus detach themselves from the other component parts, and in this manner the crumbling which is alluded to by the English authorities is occasioned—but that cannot take place in metal prepared from the pure calamine, or ore, which does not crumble, but only becomes the more ductile until it arrives at the melting point.

NOTES IN THE PROVINCES.

The curious and interesting process, but seldom resorted to, of drawing sloping walls back to the perpendicular by means of iron rods heated and thus lengthened, and then screwed up to the outer side of the wall, cooled again, and thus shortened, pulling the declining wall back to the perpendicular, has just been carried out on the walls of Barrow Church, which were more than a foot out of the perpendicular. They were also underpinned with what was regarded as a firm foundation. Other restorations and improvements have here been effected, both externally and internally, including a new open timber chancel roof of high pitch, with grey tiles, and new gables, above, and a solid body of concrete thrown in around the building below. Carved stalls, encaustic tiles, painted window glass, and other ornamental work have also been partially made use of in the restorations, which do not yet include the nave and other parts of this edifice.——Attempts to procure the erection of a corn exchange at Bedford have been renewed, 2,000*l.* being to be raised in 10*l.* shares for the purpose.——Roxton Church has been repaired at an expense of about 1,200*l.*——The Southampton Water Works Company have received the tenders called for for laying 1,050 yards lineal of cast-iron water-pipes. They were from Mr. Butler, 76*l.* 5s., and 9½d. per yard; Mr. Eyre, 75*l.* 10s., and 1s. per yard; Mr. Emmett, 49*l.* 15s. 6d., and 9d. per yard; Messrs. Gale and Coomb, 47*l.* 10s., and 10d. per yard; Mr. Weston, 39*l.* 14s., and 8d. per yard. The tender of Mr. T. Weston, of East-street, was of course accepted.——It has been resolved to erect a church at the village of Hucclecote, near Gloucester, from designs by Mr. John Jacques, architect.——Mr. Strong, builder, of Stow-on-the-Wold, has undertaken to refit the parish church at Hooknorton, Oxon, for 585*l.* Twelve firms, says the *Gloucester Chronicle*, competed; the highest offer was 895*l.*; the lowest 499*l.* 10s.——The parish church at Runcorn, re-erected at a cost of 10,000*l.*, was consecrated on Thursday week before last.——An obituary stained glass window has been put up in the south aisle of the choir of Chester Cathedral, at a cost of 100*l.*, by the dean of Chester.——Besides the district churches already built and projected at Sheffield, subscriptions have been opened for one at Moorfields. The Pitsmoor one is to be begun early in the spring. Two church sites, one in Fenton-street and another in Coal-pit-lane, have been applied for to the town trustees. A sum has been offered towards the erection of a tower to the new church in Eldon-street.——The following is a return, by Mr. Rushton, the building-surveyor, of houses and warehouses erected, or in course of erection, within the borough of Liverpool, from 1st January to 31st December, 1848:—74, under 12*l.* per annum; 506, from 12*l.* to 25*l.*; 48, from 25*l.* to 35*l.*; 28, from 35*l.* and upwards; total, 656 houses, together with 6 warehouses, The houses erected since 1838 are as follows:—in 1835, 1,052; 1839, 997; 1840, 1,576; 1841, 1,761; 1842, 2,027; 1843, 1,390; 1,844, 2,450; 1845, 3,728; 1846, 3,460; 1847, 1,220; 1848, 656; total, 20,317.——The first stone of a bridge across the Don, at Sprotbro', near Doncaster, was laid by Lady Charlotte Copley, on Monday week. It will consist of seven arches, one of 100 feet span. Messrs. Waring, of Swinton, are the contractors.——The melodious voice of the great Peter Bell—not of Wordsworthian memory, but of York Cathedral tower—whose tongue has long lolled uselessly out of his capacious mouth, is now about to be made to tell the hours for behoof of all within hearing, by help of a weighty hammer, with clock-work power sufficient to strike him on the mouth with. The tenor in the other tower, in former use, is cracked.——On the Lancashire coast great damage has been done to property, particularly sea walls in Morecambe bay, by late strong gales and inundations of the sea. Even through the rise of the tide in the river Lune, the river overflowed, and inundated many houses and cellars, the promenade, and part of the North-Western Railway.——A water company in Sunderland supplies 400 poor families, *gratis*, with service pipes and water-taps in their houses, and with an unlimited supply of water at the rate of one penny per week. A model water company, indeed!——The workmen employed by the Derwent Iron Company, says the *Gateshead Observer*, have subscribed 50*l.* towards the erection of the new district church at Shotley-bridge.——Since the opening of the Newcastle Baths and Washhouses, in September, warm baths have been taken by 3,000 males and 260 females; plunge bath by 2,246. The washhouses have been attended by 1,341 persons.——A new hospital for children is about to be erected at Edinburgh, with money bequeathed by a Mr. Daniel Stewart, and now amounting to 90,000*l.* How many more?

RAILWAY JOTTINGS.

A correspondent, "A. S. S., Railway Inspector, Knaresborough," suggests that, for the protection of the boxes for facing points, from dust, rain, snow, &c., a cover with a short slip for the handle, over the long one in which it works, should be locked upon it, unless when worked, in which case it might be so adjusted as to be readily pushed back, to allow the free working of the handle till again drawn over the open slip, and locked as before.——Under Lord Campbell's Act regarding compensation in railway accidents an important case has just been settled by jury at Dundee, in which a Mrs. Cargill laid damages at 5,000*l.* for the loss of her husband, a farmer. The Company (the Dundee and Perth) compromised the case by settling 75*l.* a year on the widow for life.——"A case," says the *Cambridge Chronicle*, "was lately decided in one of the courts by which it is now ruled that husbands who lose their wives by railway accidents can only claim, in compensation, the amount of any income which may have been cut short by their death. Thus, 'virtuous women, who were only crowns to their husbands,' will be valued, according to the tombstone cutter's rule, at five shillings. It has been suggested that at railway stations, beside the 'ladies' refreshment room,' there should be a 'ladies' valuation room,' with a proper officer in attendance. As the ladies pass, scenes of the following tenor, it is supposed, would pass also. 'What sort of a wife are you, ma'am?'—'Sir?' 'Of what value are you to your husband?'—'Your question is very impertinent, Sir. I believe, although I did not bring my husband a shilling, he would be filled with deep sorrow were he to lose me.' 'O, we have nothing to do with that, ma'am—sorrow does not enter into railway calculations. You may pass.' Another enters—'Pray, ma'am, how does your husband estimate you?' 'You are as great a brute as my husband, I believe, and that is saying a great deal. I bring him ten thousand a year, which goes back to my relations if I die, as we have no children, and yet the wretch uses me worse than ——.' 'Station-master! quick, quick! Get a special train instantly for this lady, and

let a pilot engine go before, and a guardian angel behind!"——The South-Eastern trains now run right into the harbour terminus at Folkestone, to the steam-boat station, greatly to the discontent of some, though to the equal convenience of others. A great swing bridge has been thrown across the quay constructed for this purpose. The Company are about to enlarge their station accommodation there, with a view of making Folkestone their great water terminus.——The great North-Western is about to be converted into a huge circulating library, provided with all sorts of mental provender, 'to be consumed on the premises,' in transitu or rather in circuitu. Mr. Huish, the manager, it is said, is entitled to the merit of the suggestion, and at same time, in order to effect a circulation not only of books but of cash, the whole of the stations on the line are to be 'undertaken'—for a very considerable consideration doubtless—by one party, namely, Messrs. Smith and Son, of the Strand. The passenger will have no more to do than merely to select his book at a station-stall, paying the price of it in the meantime—and, after travelling any time or distance on the line, will receive back his cash, less a trifle for perusal, on returning his book at either the same or any other stall. The idea is really a good one, and useful to the public; and when it is considered that six millions of passengers travel annually over the 500 miles of the North-Western, assuredly it ought to be a profitable one, both to the Company and their librarians.——The dividend of the North-Western, to be declared at next meeting, says *Herepath*, will be, we hear, at the rate of 7 per cent., leaving a surplus of 80,000*l*. The dividend of the Lancashire and Yorkshire will be 6 per cent.; that of Berwick 7 per cent., with a surplus of nearly 100,000*l*.; the York and North Midland 7; the Eastern Counties is variously reported, from 5s. upwards.——Mr. Andrews, Q.C., has awarded 148*l*. to one farmer and 145*l*. to another, for damage done to buildings and corn-stacks adjoining the Eastern Counties at Needingworth, fired by burning coke from the funnel of the engine of the mail train.——The railway-station at the village of Hatfield Peveril, on the Eastern Counties line, about three miles from Witham, has been destroyed by fire. Being small, and built of wood, it was speedily reduced to ashes, together, it is said, with books, tickets, and everything belonging to it, the brick chimney only being left standing. How the fire originated remains a mystery. But the *Ipswich Express* suggests that a cinder from the mail-train may have been the cause, though not likely, from the fact that it passes on the line farthest from the station. It is rather remarkable, adds the same authority, that the company had desired to take down this station altogether, and that considerable hostility had very naturally been shown by the inhabitants of Hatfield at the risk of being subjected to such inconvenience.——On the Liverpool and Bury line recent heavy rains are to blame for considerable damage to works. In many places the embankments have been injured by large portions of earth being washed from the slopes; but more serious mischief has resulted from the same cause, particularly at Wigan, in the partial destruction of an arch over the river Douglas. It is supposed that the headlong current of the Douglas undermined the foundations, and produced this disaster. A breakwater has now been formed in the middle of the river, to destroy the force with which, during heavy rain, it rushes through the arch. Some other bridges have been slightly impaired, and are being strengthened and renewed. A similar arch to the one over the Douglas has since given way at Weethoughton, according to the *Wigan Herald*.——The affairs of the Waterford and Kilkenny Company are now in a condition verging on bankruptcy, with receipts for the last eighteen weeks of only 700*l*., whilst the expenditure amounts to 1,700*l*. This company has raised and expended 250,000*l*., and also a loan of 80,000*l*. obtained from Government.——The first section of the Demerara Railway has just been opened, and the planters are availing themselves largely of the facilities it affords for the transmission of sugar, &c., from their estates.——An electric telegraph is about to be erected between Berlin, Cologne, and Frankfort-on-the-Maine.

FALL OF RAILWAY ARCHES AT MANCHESTER.

On Saturday week one of the brick arches of the North-Western's "Manchester, South Junction, and Altrincham" line of railway, adjoining Gloucester-street, Oxford-road, Manchester, gave way, and on the ensuing Thursday was followed by two more. The first fell while the centering was in course of removal, but the two latter had not had their centering at all loosened. By the fall of the first, three bricklayer's labourers were killed, and an inquest was therefore held on the bodies, at which it appeared in evidence that the arches which fell were to adjoin a central iron arch in widening the station works over Gloucester-street, and from a turn in the line at that point they were built somewhat askew. The dimensions of the first that fell were 40 feet span in the widest part, with a spring of 8 feet, the thickness of the brickwork being 2 ft. 9 in. It had been built about a month, and was supported by a centering of 12 ribs. Four of these had been removed, when a portion of the arch about 18 feet long at one end, and 7 feet at the other, suddenly gave way.

Mr. George Shoreland, the corporation surveyor, gave it as his opinion that the arch had buckled up just above the spandrils on one side. He had no doubt the centres of the arch were correct before the brickwork was laid. The work had been grouted in the usual way with thin mortar, which would render the work more substantial. The fall, he conceived, was entirely accidental.

Mr. G. C. Pauling, civil engineer and railway contractor, said: From a very careful examination of the work and materials, I think they are as good as could be put together. In my opinion, the mortar was composed of one-and-a-half part sand to one part of lime in the arch, and of two-and-a-half parts sand to one of lime in the spandril, but it is difficult to speak with accuracy after the action of the air upon the mortar for a month or six weeks. I believe the cause of the falling of the arch was the recent wet weather. On taking out the outside ribs they would throw a greater weight on the narrow side of the arch, from the backing of the wide end being much heavier. This caused the end to buckle and fall in a mass in Gloucester-street. My opinion is strengthened by the fact that a fracture has taken place in a parallel line with the ribs of the centre.

Mr. William Edwards, joiner, builder, and contractor, said that, taking into consideration the recent wet weather, three weeks were long enough for the centres to be under the arch. I have examined the mortar, which seems to be good, and sufficient for the purpose. I consider it is fully as good as is usually made, and that more care has been taken of it than usual, after having gone through a certain process. Each brick would absorb about a pound of water, and the weight of the moisture, no doubt, pressed the bricks down, and caused the arch to give way.

The jury returned the following verdict:—"That the men were accidentally killed when removing the centres from underneath an arch by the falling in of a portion of the arch, rendered insecure by the recent wet weather."

The contractors for this portion of the works are Messrs. David Bellhouse and Son, who are said to have hitherto escaped all fatal or considerable accident in the progress of their contract.

PATENT RIGHTS—CHIMNEY FLUES.

For the encouragement of arts, and the security of inventors of original discovery, or the application to useful purposes of what may not be even novel in itself, those privileges granted by the Crown are supposed to afford ample protection to the patentee; on looking, however, a little below the surface, we may easily discover the fact that the originator of an useful theory in science or invention in art is frequently thrown out of his justly acquired merits, and debarred from its reward by others, who either boldly pirate or adapt his conceptions to a slightly modified arrangement.

About eight years back, the writer of this article took out a patent for building in the solid walls circular flues of iron-stone-ware, or terra-cotta; he applied them in structures, and found them to answer the purposes of a perfect draught for the smoke and the obviation of concreted soot in chimneys: the material being hard, solid, and extremely durable, resisting the action of both fire and water, he also applied the same tubes for sewers.

The heat acquired and generated in the chimney accelerated the draught, whilst the smooth surface gave a free flow to the sullage, and the circular form admitted of no deposit.

Having incurred the expense of 120*l*. for the patent, &c., and 500*l*. more for a quantity of the material, which he had conveyed from Burslem, in Staffordshire, to a wharf at Belgrave Basin, London, he then published a pamphlet, and dispersed it widely amongst the architects and builders of the kingdom; from whom some orders and large acknowledgments and admissions of utility were received.

It should be here mentioned that a circular tube of 7 inches in diameter, for conveying the ashes from every stage of a building to a pit in the basement, formed part of the patented application (for a tube can hardly be called an invention). Well, for three years, the wharf was kept open for the sale of the materials, at only 10 per cent. profit on the cost price; a clerk was paid for that period, and yet not more than half of the supply on hand (only 500*l*. worth) was consumed or bought.

It may be supposed that the patented invention was not brought into use—but such was not the fact—for in her Majesty's Palace (Buckingham) they were applied, as they were also in all Mr. Cubitt's, Mr. Seth Smith's, and other wholesale builders' cities of mansions; and they are now applied, or being used, in all the clubs, mansions, Houses of Parliament, or palaces that we see springing up, and assuming the most ornate exteriors that art and expense can accomplish.

Complainant saw all this, and did complain; but he was told to seek an injunction in chancery.

After expending 1,000*l*. on the adventure, he was in no humour to embroil himself further; having been already seven years in that court, and sunk in its morasses 10,000*l*. and upwards in costs only.

At length, however, he submitted to the Commissioners of Sewers samples of his ware, as admirably adapted to sewage: his views were adopted, and suggestions approved—and the honourable Commissioners gave him 100*l*. for the residue of the flues (9 inches in diameter), which had cost him twice that sum. The office of Sewers has since adopted the plan, finding it eminently effective, but have discovered some other market for the commodity—having never given, nor offered, a contract to their slighted illuminator.

As the natural patron of arts, artists, science, and practical utility, THE BUILDER is appealed to for publicity to these wrongs, if not for aid in their redress. "*Sic vos non vobis*" was the plaint of the poet long before copyrights or patents were thought of; edificates *apes* (which you may pronounce as you like) might be added by your correspondent, QUONDAM.

I would send you a specimen of my patent flues, but they are now patent in every street in London where sewers are being repaired, and in every large house in progress of construction.

METROPOLITAN COMMISSION OF SEWERS.

A special court was held on the 23rd ult., at the house, Greek-street; the Hon. Frederick Byng in the chair.

The late Cases of Cholera at Tooting.—In pursuance of a resolution passed at the last court, the committee, consisting of Capt. Veitch, R.E., Capt. Dawson, R.E., Mr. Johnson, Mr. Hutton, and Mr. Hawes, inspected the whole of the drainage of Tooting, on Friday last, and this day presented their report to the court. The conclusion arrived at by the committee was, that it would be inexpedient to remove the penstocks altogether, as exposing the sullage and fœtid matter to atmospheric exhalation would increase rather than diminish the evil. The committee recommended some temporary measures of relief till the adoption of some general and uniform system of drainage. The report being received,

Mr. C. Johnson said that, as one of the committee, he wished to state in open court, that the committee were struck with the carelessness—if not the recklessness—of any public body, in the choice of such a place as they saw for the alms-houses of St. Clement Danes, which appeared to have been purchased at an expense of 400*l*. per acre, with an offensive open ditch close by the property. This work, commenced in error, was defended on the ground that the parish of St. George, Southwark, were in treaty for the adjoining field for a similar

purpose. He deprecated this carelessness—he would not call it by a stronger name—in this total disregard of public health, and he had felt it his duty to bring the matter before the court, as a caution to other bodies in their choice of sites for building.

Dr. Southwood Smith, in an able speech, called the attention of the court to a particular case, as an exemplar of a class of cases which appeared to him to require the immediate and earnest attention of the commission. The General Board of Health have directed one of their medical superintending inspectors, Mr. Grainger, together with Dr. Arthur Farre, to examine the present condition of the workhouses of the metropolis, and more especially the state of the various establishments for pauper children, such as that at Tooting. The very first report made by these gentlemen on the establishments for pauper children, contains a representation as to the Norwood House of Industry for children in connection with the parish of Lambeth, showing, amongst other points, the existence of an open ditch in the neighbourhood, formed by the drains of the establishment: that immediately after a severe storm, in August, 1846, when the drains were overflowed, 120 of the children were seized with opthalmia in the course of three days, and that since improvements were made in the privies, opthalmia, previously a prominent and prevailing disease among the children, had nearly disappeared. The time may be short (said Dr. Smith) that is left us to labour at the work of prevention, and one of the most obvious means of prevention is the immediate removal from the close neighbourhood of dwelling houses of such nuisances as that in question. I therefore move, "that the surveyor inspect the open ditch near the Norwood House of Industry, and report to the Committee of Works thereon." I earnestly hope (he continued) that we may be spared any further visitation of cholera; but we cannot conceal from ourselves that it is hovering over us, and that it may swoop down upon us at any instant.

Mr. Broderip seconded the motion, and it was ultimately carried.

Resolutions were passed that two additional assistant surveyors be appointed at salaries of 250*l.* per annum; and that all future appointments be for one year only, at the expiration of which time they are to be re-considered.

The Drainage of the New Palace at Westminster.—The clerk read a document from Mr. Barry, on the subject of the drainage of the new Houses of Parliament, the pith of which has already appeared in our pages.

Mr. Bullar said this question reminded him of a controversy that took place in France, commencing in pamphlets, and ending in volumes, and he wished to know where this controversy was to end.—Mr. Broderip said, where two gentlemen were at issue so much, a lawyer would say let a jury come at once.—The Rev. W. Stone said it was most important the principles contained in the two systems should be properly ascertained.

Mr. Leslie thought any money spent on this subject well bestowed, to show the value of the two systems, and moved, "That at the request of Mr. Barry, and for the advantage of the public, the charges made by Mr. Austin, with Mr. Barry's reply, be printed in juxtaposition, together with the subsequent rejoinders of both these gentlemen."—Motion put and agreed to.

Miscellanea.

"Artists' Conversazione."—The first, for the present session, of the series of conversazioni, given annually under this title at the Freemasons' Tavern, was held on the 27th ult. Amongst the works of art exhibited were a charming drawing of "Fox-Gloves," by Mrs. Withers; a nice little picture, in Topham's style, by Mr. J. H. Mole; and a portfolio of sketches by the same artist; a clever miniature by Miss Cole; and a drawing in the Temple Church, by her sister Miss E. Cole. Mr. E. A. Goodall exhibited an interior, more like some recent works of his brother than his paintings are usually, and a portfolio of sketches. There were also a set of sketches in Tasmania, by Mr. Skinner Prout; illustrations of the Collegiate Church of the Holy Trinity, at Edinburgh, by Mr. D. Wilson; and other interesting matters. This association has now been in existence about twenty years, and is the root whence sprung "The Graphic,"—but it has pursued the even tenour of its useful way so quietly that it is less known than many bodies of more recent establishment. The want of a more distinctive title, too, has perhaps had something to do with this.

Monument to Picton.—The monument erected at Carmarthen to the memory of Picton is at last completed. According to the *Cambrian*, which terms it a monument of bad management, it is a clumsy disproportioned pyramid, manifesting by the rapid tapering of the shaft that the cash of the managers was exhausted, or that the builder was tired of his job. At the base run out four promontories, from each of which a large cannon, with feeble carriage, frowns on passengers as they approach what they may mistake for the chimney of a manufactory.

Suspension Bridge at Pesth.—The bridge which is erected over the Danube at Pesth, was commenced in 1840, according to the designs and under the direction of William Tierney Clark, civil engineer, and has just been completed at a cost of 650,000*l.* This bridge has a clear waterway of 1250 feet, the centre span or opening being 670 feet. The height of the suspension towers from the foundation is 200 feet, being founded in 50 feet of water. The sectional area of the suspending chains is 520 square inches of wrought iron, and the total weight of the same 1,300 tons.

Preservation of Books.—About 25 years ago I was annoyed by finding the backs of several rows of books, some in a bookcase having glazed doors, which were kept locked, and others on adjoining open shelves, frequently mildewed. Wiping them carefully cleaned them only for a time, for fresh crops of mildew speedily disfigured them again. Remembering to have seen my father, who always made his own ink, finish off by pouring a small glass of spirits of wine into the ink jar, in order to prevent its becoming mouldy, I lightly washed over the backs and covers of the books with spirits of wine, using, as a brush, the feather of a goose-quill. I frequently saw the books during the next five years, and I have occasionally seen them since, and there has not, so far as I am aware, been a single spot of mildew on them since the spirits of wine were applied. I have used spirits of wine to prevent mildew with equally good effect in other cases. N. R.

The Louvre.—The Minister of Public Works, M. Vivien, has prepared an elaborate report of the present condition of the Louvre, for necessary repairs and embellishments, as well as opening other saloons. The sum required for the present year is 200,000 francs, and 1,800,000 for the following one. The report is at considerable length; the principal features being—1st, The entire reconstruction of the roof of the grand gallery, to admit the light from the top, and to close the side windows. 2nd, To redecorate and alter the disposition of the *Grand Salon*, and the *Salon des Sept Cheminées*. 3rd, The entire reparation of the Gallery of Apollo. In the budget for the present year, the first item is calculated to cause an expenditure of 160,000 francs. The redecoration of the *Grand Salon* is estimated at 600,000 francs; the *Salon des Sept Cheminées* is set down at 400,000 francs; and finally, the expenses calculated to restore the Gallery of Apollo at 1,000,000 francs. In consequence of this report, a commission was nominated to consider the proposition, and on its meeting, in the Hall of the Institute, most of the distinguished artists of Paris were present. The plan given by M. Dubau, the architect, was the subject of a very learned discussion. The style of ornamentation especially was investigated. M. Ingres proposed a red ground, with very rich decorative details; his opinion was strongly enforced by Messieurs Drolling and Horace Vernet. M. Delacroix suggested a more sober colour as the ground, with very slight ornament. It was remarked that good colourists had always preferred a ground that would lower the lustre of tints, and render their brilliancy more harmonious by opposition with a positive vivid colour; while, on the other hand, it was agreed that where colour was not the characteristic of artistic works, a more unobtrusive ground would give them due advantage. The proposition of Messieurs Ingres and Horace Vernet obtained the suffrages of the commission, and was finally adopted.—*Art Journal.**

* The new number of the *Art-Journal*, with two fine engravings from the Vernon Gallery, and a profusion of other illustrations, is quite a marvel in periodical literature.

Projected Works.—Advertisements have been issued for tenders, by 18th February, for building a new savings' bank and a new market-hall and corn-exchange, at Lichfield; by 20th, for the erection of a house at Harbledown; by 8th, for erecting prisoners' cells, kitchen offices, infirmary, boundary wall, &c., at the county jail, Huntingdon; by 21st, for the various works to be done in the erection of the poor's hospital new buildings and offices at Paisley; by 6th, for the erection of a parsonage-house and offices at Ripon; and by 6th, for a survey of the town of Abingdon, Berks, and a report of the expense of draining the same by proper and efficient sewerage.

Gas: Reductions in the Price, &c.—In consequence of past reductions at Doncaster, the consumption has so much increased that the Company have declared their intention, on that special ground, to repeat the experiment, by a further reduction to 4s. 7d. per 1,000 cubic feet.——The Cambridge shareholders appear to have now also as hopeful a prospect before their eyes in determining to carry out the like principle. They have just announced a reduction from 7s. to 6s., and the chairman "also stated that the committee of management had reason to hope that ultimately no town in the kingdom, of comparative size and population, would be lighted by gas at a less expense than Cambridge."——At Fareham, on the contrary, the company have the stupidity to refuse to reduce their price *to* 7s. 6d., while the consumers have not only determined not to pay more, but have been offered a supply at 5s. 6d.——The company at Brigg have reduced their price from 10s. to 8s. 4d., with the "hope that there will be an increase of private consumers," which there doubtless will be, though only to an extent equivalent to the smallness of the reduction, or rather to the largeness of the remainder. They had already supplied the railway station at 5s., exclusive of pipes and fittings.——It is proposed to light the shire hall at Chelmsford from gas jets outside the windows, a principle which we learn has been adopted in other court houses with excellent effect, both in brilliancy and comfort.——A petition to the Commons is in progress at Birmingham, according to the *Journal*, praying them to enact that all gas meters shall be properly proved and inspected, as measures generally are, and that the irresponsibility of companies, or of those by whom meters are supplied, as well as the liability of meters to register incorrectly, may be thus or otherwise properly checked. Mr. N. Scholfield, M.P., is to introduce a bill in the forthcoming session to remedy this evil.

Improvement of Open Spaces.—With reference to the suggestions for laying out Kennington-common, and the improvement of Camberwell-green, in your last number, allow me to suggest for further comment, that many wide spaces and thoroughfares round London are easily susceptible of similar improvement: Whitechapel-road, Islington, Blackfriars-road, and the various so called greens might be planted and systematically laid out, so as to present a pleasing aspect and healthy promenade, and that at comparatively trifling expense. In many of the narrowest roads, the small gardens in front of the houses should be purchased for the widening of the thoroughfares before the value is enhanced by their being converted into shops,—a process which is rapidly taking place in all the roads leading to the metropolis. In short, a public inspector ought to be appointed for the better regulation of such matters; it would not fail ultimately to save the public from great inconvenience as well as expense. For while we are going to great expense in widening some thoroughfares, we are suffering others to be as fast closed up.—Footpad.

Large Casting.—A cylinder, 95 inches in diameter and 10 feet stroke, was cast yesterday afternoon, at the Novelty Works, in presence of a large number of persons, who had been invited to witness the operation. No less than 25,000 lbs. of molten iron were used for the casting, which, when finished, will be about 20,000 lbs. This is, probably, the largest and heaviest casting of the kind ever made; and is for the first of Collins's line of sea-steamers, which are now in a great state of forwardness, two of which, we learn, will be launched early in January.—*American Paper.*

DESTRUCTION OF A LARGE GASHOLDER.—At the Edinburgh Gas Company's Works, on Thursday week, a new telescopic gasholder tilted over by the breaking of a guide rod, and by the friction, or otherwise, exploded, or at least set fire to, the gas, of which it contained nearly 300,000 cubic feet, being the largest gasholder in Scotland—40 feet in depth and 100 feet in diameter. Both gas and gasholder were destroyed, and the loss is estimated at about 2,000*l*. The adjoining houses, windows, &c., were considerably injured.

STEAM-BOILER EXPLOSIONS IN THE UNITED STATES.—A report has just been presented to Congress, upon the subject of explosions in American steam-boilers. The report includes the number of accidents of this character from 1816 to 1848, and shows a total of 233 explosions, calculated from the average of the given cases.—Pecuniary loss—233 cases, at 13,302 dollars each, 3,099,366 dollars.—Loss of life—11 each, 2,563.—Wounded—9 each, 2,097=total killed and wounded, 4,660.

CURIOUS INVENTION.—Mr. Coupland, of Skellingthorpe, near Lincoln, has just produced a very curious invention, for the purpose of preventing the strong glare of the sun's light being cast upon windows which front the south.

MEDIÆVAL REMAINS.—The original floor of the ancient refectory at Durham has been discovered. About a foot and a half below the joists was an uniform surface of rubbish, on removing a portion of which, to the depth of about 3 feet, the workmen struck upon the floor of the ancient refectory. It is composed of plain red encaustic tiles, about 10 inches square, and of much rougher composition than is now deemed requisite.—*Sunderland Herald.*

WESTMINSTER ABBEY.—The following extract from the *Northampton Mercury*, of more than a hundred years since, will interest some of our readers:—"London, February 23, 1722-3.—The rebuilding of Solomon's porch and the rest of the north front of Westminster Abbey is now finish'd, according to the model of the old building of the Gothick order; and the workmanship, in the opinion of competent judges, is reckon'd very beautiful and curious, in which the moderns have not only equal'd, but even exceeded the ancients in their own manner of architecture. The great window of 32 foot square in the front is likewise glazed with glass curiously painted after the Antique fashion, by Mr. Price, who is reckon'd the only artist in England capable of doing it; so that that ornamental art is not so entirely lost as some have alledg'd."

"TOM STEELE" AN ENGINEER.—Tom Steele, the devoted follower of O'Connell, whose melancholy end a short time since our readers will remember, was an associate of the Institute of Civil Engineers. In a memoir of him which was given at the general meeting of the Institution, mentioned last week, it was said that his attention being directed to the bad state of the navigation of the river Shannon, he determined to make a personal survey of the bed of the river, which he did in the most complete manner, employing sometimes very original means; such, for instance, as stepping along the line of a reef or shoal, supporting himself with one hand upon the stern of a boat, whilst he measured and recorded all the inequalities of the surface, and ascertained the nature of the rock or ground. An account of this survey was published by him; and no greater proof of its utility can be given than the fact of the greater portion of his suggestions having been followed in the works that have been since executed. His attention being thus directed to the diving bell, he devised several alterations in its construction and application; particularly a method of lighting the divers during their submarine labours. All these, with many similar subjects, were published in the current periodicals of the day, and some of them were communicated to the Institution. At a later period, a favourite theme upon which he repeatedly addressed the Institution was the purchase of the birth-place of Sir Isaac Newton, and its preservation by the scientific world, in the same manner that Shakspeare's house has since been obtained by the exertions of literary and dramatic men.

TENDERS

For new city prison at Holloway: Mr. Bunning, architect:—

Holland	£109,780
Costar	104,979
Baker and Son	104,937
Hicks	103,450
Curtis	102,384
Harrison	102,139
Kelk	100,622
Burton	99,890
Lee	98,500
Willson	98,387
Haward and Nixon	97,800
Piper	97,450
Jackson	97,402
Grimsdell	96,865
Locke and Nesham	96,593
Glenn	95,480
Jay	93,820
Trego (accepted)	92,290

For new county prison, Wandsworth: Mr. J. Hill, architect:—

Baker and Son	£114,590
Costar	112,003
Munday	109,998
Jackson	109,908
Lawrence and Son	108,188
Grimsdell	108,147
Haward and Nixon	107,590
Hicks	107,200
Branston and Gwyther	106,950
Lee and Son	106,875
Piper	106,200
Curtis	105,724
Higgs and Son	105,491
Locke and Nesham (accepted)	102,870

Both tenders opened in the presence of the builders. Quantities supplied for both.

MEETINGS OF SCIENTIFIC BODIES

Held during the ensuing week.

MONDAY, FEB. 5.—Institute of Architects, 8 P.M.
TUESDAY, 6.—Institution of Civil Engineers, 8 P.M.
WEDNESDAY, 7.—Society of Arts, 8 P.M.
THURSDAY, 8.—Royal Society, 8½ P.M.; Society of Antiquaries, 8 P.M.
FRIDAY, 9.—Archæological Association 8½ P.M.

TO CORRESPONDENTS.

Received.—"C. N.," "Antiquity," "J. H.," "Fair Play," "Tartan" (yes), "A. R.," "H. P.," "An Old Mason," "An Old Subscriber," "T. B. L.," "J. G.," "C. F." (next week), "W. F.," "Trader" (shall appear), "G. W." (next week), "Looker-on," "L. M. T.," "R. G.," "J. J.," "W. H. S.," "H. M'C." (yes), "E. T. B.," "J. G." (a filter so formed *above ground* would doubtless answer. We are promised a letter from Norwich), "Young Plasterer" (we do not understand his question), "An Architect," "P. V. C." (copy shall be sent), "A Subscriber," "H. W. B." (we cannot advise our correspondent to take the step he speaks of: architectural modellers find little employment), "*Ami et Amateur*" (thanks for the suggestion and friendly tone), "J. G." (Malton), "Mr. W.," "E. S." (thanks—next week), "An Architect" (make out a bill for the business actually, estimating time, &c., employed). "The Gold Seeker's Manual," by David Ansted, M.A. (Van Voorst, Lond. 1849); "Con. Cregan," No. II.; "The Family Friend," I. and II.

ADVERTISEMENTS.

ENCAUSTIC, VENETIAN, BATH, and other PATENT TILES, and MOSAIC PAVEMENTS, may be obtained in great variety at MINTON and Co.'s Warehouse, 9, Albion-place, Surrey side of Blackfriars-bridge; and at their Manufactory, Stoke-upon-Trent, Staffordshire.—N.B. Slabs and Tiles for Fireplaces, plain and ornamental; Door Furniture, &c.

MOUNTED DRAWING PAPER.—HENRY POPE has in stock Drawing Paper, which has been mounted on Linen for TWO YEARS and UPWARDS, in various length: of 2 ft. 2 in., 3 ft. 3 in., and 4 ft. 4 in. wide. Tracing Papers, Drawing and Writing ditto, Envelopes, and every description of Stationery at wholesale prices. Publisher of Weaver's "Hints on Cottage Architecture," with Plans, Elevations, and Estimates, imperial 4to., cloth, 25s.—22, Budge-row, Watling-street.

OLD-ESTABLISHED WHOLESALE IRONMONGERY WAREHOUSE, Kitchen-range, and Stove-grate Manufactory 18, Cross-street, Walworth.

JOHN GRICE most respectfully solicits the attention of Architects, Builders, and Carpenters, to his Stock of Black and Bright Stoves, Kitchen Ranges, &c., &c.
Black Registers, from 6d. per in. and upwards.
Bright ditto with Black and Bright Bars, 3l. 10s. and upwards.
Self-acting Kitchen Ranges, with Oven and Back Boiler:—
3 ft., 2l. 8s. 3 ft. 6 in., 2l. 15s.
Elliptic Stoves, with double backs, 3d. per in.
All articles made on the premises and warranted, and delivered free of expense within five miles of London. Bell-hanging in superior style, hung in secret, 8s. per pull.

TO ARCHITECTS, BUILDERS, &c.
HAYWARD, BROTHERS, late R. HENLY and Co., WHOLESALE IRONMONGERS, and Manufacturers of KITCHEN-RANGES, STOVES, &c., 196, Blackfriars-road, and 117, Union-street, Borough.
Strong Self-acting Kitchen Ranges, with Back Boiler and Oven and Wrought Bars:—

3 ft.	3 ft. 3 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft.
£3.	£3. 10s.	£3. 15s.	£4.	£4. 10s.

Henly's Patent Improved, with back Boiler and Wrought Iron Oven:—3 ft. 3 ft. 3 in. 3 ft. 6 in. 3 ft. 9 in. 4 ft.
£5. £5. 15s. £6. 5s. £6. 10s. £7.
Best Register Stoves, at 7d., 8d., and 9d. per inch.
Do. Elliptic do., at 3½d., and 4d. do.
Manufacturer of WOLFASTON'S PATENT REGISTER STOVES, a certain cure for SMOKY CHIMNEYS, and effecting a great saving in fuel. To be seen in use daily.
Orders from the Country, accompanied with a remittance or references, will meet with prompt attention.

TO BUILDERS, CARPENTERS, AND OTHERS.
BENJAMIN WALMSLEY, Wholesale Ironmonger, Brass-founder, Stove-grate, and Kitchen-range Manufacturer, at the Paddock, 127, London-road, Southwark.
Self-acting ranges, with oven and boiler and revolving shelves complete,
2 feet, 2l. 10s. 2 feet 6 inches, 3l.
Register-stoves, from 6d. an inch and upwards.
Elliptic-stoves, with double backs, 3d. an inch.
Washing-coppers, 1s. 2d. per lb.
Sash pullies (iron bd.), 8s. per gross. Sash weights, 6s. per cwt.
Cast butts, per dozen pair.
2 inch, 10d. 2½ inch, 1s. 2d. 3 inch, 1s. 9d.
Best cut clasp, per thousand.
4d., 5½d.; 6d., 7d.; 10d., 1s. 3d.; 20d., 1s. 7d.
Every description of ironmongery, brass-foundry, &c., adapted to the use of builders, upholders, cabinet-makers, bell-hangers, smiths, wheelwrights, and others, of quality and at prices that defy competition. Iron and spring steel.

TO BUILDERS and CARPENTERS.—Elliptic Stoves, double backs, 3d. per inch. Registers, 6½d 7d., 9d. per inch.
Cottage Ranges, with Ovens and Boilers, 2 ft. 2 in. 40s.; 2 ft. 4 in., 45s.; 2 ft. 6 in., 46s.
Self-acting Ranges, with Circular Oven and Back Boiler, best Wrought Bars and Bright Fittings,
3 ft., 4l. 12s. 3 ft. 6, 4l. 7s. 4 ft., 4l. 15s.
Best Patent Cut Clasp.

4½d.	5d.	7d.	10d.	1s. 2d.	1s. 8d. per 1,000
3d.	4d.	6d.	8d.	10d.	20d.

Best Sheet Floor Brads 12s. per cwt.
Best Town Glue 80s. Do. Scotch, 52s. per cwt.
Best Patent Sash Line.

4s. 3d.	5s.	6s. 6d.	7s. 6d.	10s.	12s. per gross.
1	2	3	4	5	6

At F. R. WILLIAMSON'S IRONMONGERY and STOVE WAREHOUSE, 38, Chiswell-street, Finsbury-square.
Lists of Prices had on application at the Warehouse, or by letter pre-paid, inclosing postage stamp.—Warehouse closes at 7 o'clock.

TO BUILDERS, CARPENTERS, &c.—The undermentioned are the PRESENT PRICES of IRONMONGERY, at YOUNG'S, 194, Oxford-street. Every other article equally low. Orders executed upon receipt of remittance or a respectable London reference.

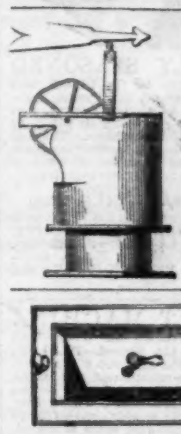
	2	2½	3 Inches.	
Cast Butts	5s. 3d.	7s. 6d.	11s.	per 6 dozens.
Cut	4d.	6d.	10d.	20d. } per
Clasp	5½d.	7d.	1s. 2d.	1s. 8d. } 1,000.

	Nos. 3	4	5	6	
Patent Line	6s. 6d.	7s. 3d.	8s. 10d.	12s.	per gross.

	2	2½	3 Inches.	
Rain Pipe	1s. 1d.	1s. 3d.	1s. 5d.	per yard.

SMOKY CHIMNEYS caused by WIND are guaranteed to be cured by the application of DAY'S newly-invented SIMPLEX WINDGUARDS, which offer the the following advantages over the tried invention, known as DAY'S PATENT WINDGUARD; viz., greater cheapness and durability, impossibility of clogging with soot, and the prevention of the descent of smoke down adjoining chimneys. Price in Galvanized Iron, 25s.; Size for Kitchen Chimneys, 40s.; To be seen and tested at Mr. JEAKES'S, the Sole Proprietor, 51, Great Russell-street, Bloomsbury. Prospectuses forwarded on application. Country licenses for manufacturers granted.

SMOKY CHIMNEYS.—"NO CURE NO PAY."
J. WILSON, Bricklayer and Surveyor of Chimneys, 1, Vale-place, Hammersmith, begs to inform architects, surveyors, builders, and others, that he can guarantee a perfect cure of chimneys from smoking into rooms, and on the equitable terms of "No cure no pay." References and testimonials of the highest respectability can be given.
N.B. WILSON & Co.'s PATENT CHIMNEY POTS for the Cure of Smoky Chimneys, which have been extensively tested for the last four years, can be forwarded to any part of the Kingdom on receipt of a Post-office order. Prices and prospectuses by return of post. Licenses granted to manufacturers.
MANUFACTORY—VALE-PLACE, HAMMERSMITH, MIDDLESEX.



SIR HENRY HART'S CHIMNEY PUMP, FOR THE CURE OF SMOKY CHIMNEYS, and the constant ventilation of apartments. It has been in successful use at Greenwich Hospital for several months.
SOLE AGENTS.
BENHAM and SONS, 19, Wigmore-street, Cavendish-square, and G. and J. DEANE, opening to the Monument, London Bridge.
A liberal discount to Ironmongers and Builders.

DR. ARNOTT'S VALVES for thoroughly VENTILATING APARTMENTS of every description. F. EDWARDS having had the advantage of making them under the immediate direction and patronage of Dr. Arnott, enables him to present the public with Valves of the most approved principle for general use. Prices from 7s. 6d. to 2os. and upwards. A prospectus, containing every information, to be had on application to F. EDWARDS, 42, Poland-street, Oxford-street, London.

DR. ARNOTT'S VENTILATING CHIMNEY VALVE.

For carrying off Heated and Impure Air from Bed-rooms Sitting-rooms, Counting-houses, and Apartments generally.
LIST OF PRICES.

	First size, 11 by 8.	Second size, 16 by 12.
Plain Iron Valve	7 6	12 0
Bronzed and Leathered	9 0	14 0
Japanned, white with Gold lines	13 0	21 0
Brass Front	17 0	24 0

Packing Cases (if required), 1s. 3d. each.
Manufactured by HART and SONS, 83, 84, 85, Wych-street Strand, London.

IMPROVED SELF-ACTING CHIMNEY VENTILATORS.

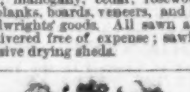
FOR CARRYING OFF HEATED AND IMPURE AIR from drawing-rooms, sitting-rooms, bed-rooms, nurseries, offices, &c. &c., from 5s. each.—BURY and POTTS, Manufacturers and Ironmongers, 66, York-street, Westminster, London.
Stoves, ranges, rain-water pipes, gutters, and builders' ironmongery, as low as any house in London. Delivered free within 3 miles.

REDUCED PRICES.—WILLIAM CLEAVE, of Wilton-road, Pimlico Basin, begs to acquaint Builders and the Trade that he has now on hand, at his Manufactory (the first of its kind ever established), a very large Assortment of Dry and Well-seasoned OAK AND DEAL PREPARED FLOORING BOARDS and MATCH BOARDING of all sorts, from ¾ inch to 1¼ inch thick, planed to a parallel width and thickness, and at greatly Reduced Prices. Also, Timber, Deals, Oak Planks, Scantlings, Sash Sills, Mouldings prepared by Machinery, Laths, &c.

Apply at W. CLEAVE'S Flooring Manufactory and Timber Yard, Wilton-road, Pimlico Basin, late C. MOORE and SON.

A REDUCTION in the PRICE of FLOOR BOARDS.—ALFRED ROSLING begs to inform the Trade and Consumers generally, that he has REDUCED the PRICE, and keeps constantly in stock a large and very general assortment of Prepared Floor Boards and Matched Boarding, planed to a parallel breadth and thickness, and fit for immediate use; also a variety of machine-prepared Mouldings, which are finished with great accuracy and attention to quality of workmanship.—Southwark Bridge Wharf, Bankside, and Old Barge Wharf, Upper Ground-street, Blackfriars.

GREAT REDUCTION IN THE PRICE OF FLOOR BOARDS AND MATCH BOARDING.—THOMAS ADAMS (late S. Darel, Mahogany and Timber Merchant, Bermondsey New-road, Southwark, near the Bricklayers' Arms, begs to inform his friends and the trade generally, that he has in stock a large assortment of the above goods, fit for immediate use, at prices which only require a trial to prove their decided cheapness. Also mouldings prepared by machinery from the very best material, and in a superior manner; cut deals and scantling of every dimension; mahogany, cedar, rosewood, wainscot, elm, beech, oak, &c., in planks, boards, veneers, and logs; pantile, oak, and fir laths; wheelwrights' goods. All sawn and prepared goods (except timber) delivered free of expense; sawing charged at mill prices. Very extensive drying sheds.

MUIR'S PATENT  PLANING MACHINE.

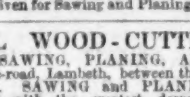
SAW MILLS, GILLINGHAM-STREET, PIMLICO.

TIMBER of any size, PLANK, DEALS, and BATTENS, &c., Sawn on the most approved principle. Boards, &c., Prepared, Matched, and Grooved, by Muir's Patent Machinery. The Mills have all the advantages of navigation and water-carriage, being connected with the Thames by the Grosvenor Canal. Goods fetched from the docks and carted home free of charge.

Address to HENRY SOUTHAM,
Saw Mills, Gillingham-street, Pimlico.

N.B. Estimates given for Sawing and Planing.

GENERAL WOOD-CUTTING COM- PANY.—SAWING, PLANING, AND MOULDING MILLS, Belvedere-road, Lambeth, between the Suspension and Waterloo Bridges. SAWING and PLANING in all their branches executed with the greatest despatch and punctuality. A large Stock of seasoned and beautifully WORKED MOULDINGS, consisting of upwards of 100 different patterns kept constantly on hand; also an extensive assortment of dry prepared FLOORING BOARDS, of all qualities and at reasonable rates.



WOOD THOROUGHLY SEASONED in DAYS instead of YEARS, by DAVISON and SYMINGTON'S PATENTED PROCESS, at the Patent Desiccating Company's Establishment (for Seasoning, Sawing, and Planing Wood), at the Grand Surrey Mills, immediately adjoining the Commercial and East Country Docks, Rotherhithe. The new process ensures the entire removal of moisture, hardens the gums, prevents further shrinkage, and strengthens the fibre.—For scale of prices, or license to work the patent, or any further information, address, post-paid, or apply to

ANGUS JENNINGS, Secretary.

The Patent Desiccating Company's Offices are REMOVED from 28, New Broad-street to No. 41, GRACECHURCH-STREET, CITY.

The Company's Agents are—Mr. WM. LANE, Irwell-buildings, Manchester; Mr. THOS. MILLIE, Kirkaldy; Messrs. RANDOLPH, ELLIOT, and Co., Glasgow; Messrs. CLIFFORD and BROWN, Hull.

JORDAN'S PATENT MACHINE CARVING and MOULDING WORKS for WOOD and STONE, Belvedere-road, Lambeth, and 154, Strand.—TAYLOR, WILLIAMS, and JORDAN beg to call the attention of the building community to a new feature of their establishment, and, at the same time, to thank their numerous patrons and friends for the very liberal support they have lately experienced, which, they assure them and the public, it will be their constant endeavour to deserve, by giving their customers an increasing share of the advantages arising from the constant improvements in the machinery which they have just succeeded in applying to the production of the most intricate carving in Caen and other freestones, and in statuary marble.

T., W., and J. particularly solicit the attention of architects and builders to the fact that, by the use of this machinery, a very large saving, both of time and money, is effected,—so great, indeed, that in many cases they can deliver a well-finished article in Caen stone for less money than it can be obtained in cement, while their wood-carving will, in some cases, be found to come into close competition with the best kinds of composition ornament.—For prices and estimates apply at 154, Strand.

TESTIMONIAL FROM CHARLES BARRY, ESQ.

"Westminster, May 16th, 1848.

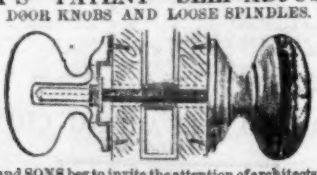
"Gentlemen,—In reply to your letter requesting my opinion of your Patent Carving Machinery, I have much pleasure in stating, from an experience of more than two years, in its application to the production of the wood carvings of the House of Peers, and other apartments of the New Palace, at Westminster, that I am enabled to make the most favourable report concerning it, and to add that it has more than justified the favourable terms in which I recommended it in 1845 to her Majesty's Commissioners of Woods and Works for adoption.—I remain, Gentlemen, yours faithfully,

"CHARLES BARRY."

"Messrs. Taylor, Williams, and Jordan."

By Her Majesty's Royal Letters Patent.

PITT'S PATENT SELF-ADJUSTING DOOR KNOBS AND LOOSE SPINDLES.



HART and SONS beg to invite the attention of architects, builders, and others, to their Door Furniture, mounted for PITT'S PATENTED SPINDLES. The knobs are stronger, more durable, and more elegant in form, than those in ordinary use, as the spindles, being loose, do not require the objectionable side screw. They are more readily fixed, are suitable for every description of lock now in use, and, as they adjust themselves to doors of different thicknesses, without alteration, are particularly adapted for the country or for exportation. They are made (to suit every style of decoration) in China, crystal, amber, and opal glass, buffalo, horn, ivory, ebony, brass, &c., en suite with finger-plates, bell-pulls, levers, &c.—May be obtained of all Ironmongers; or of the proprietors and sole manufacturers, HART and SONS, Wholesale Ironmongers, 53, 54, and 55, Wych-street, Strand, London.

N.B. PITT'S PATENTED SPINDLE, being the only one that does not require a screw in the side of the knob or mounting, the use of any lock furniture without such side screws would be an infringement of the patent.

TO ARCHITECTS.—COMPETITION AND OTHER DRAWINGS.

MR. THOMAS S. BOYS, Member of the New Society of Painters in Water Colours, and author of "The Picturesque Architecture of Paris, Ghent, Rouen, &c." and of "London as it is," offers his services in Tinting Backgrounds, Landscapes, Perspective Views, Interiors, &c. From the long experience he has had in such subjects, he is fully aware of the points essentially necessary to be attended to. Drawings and designs lithographed in a superior manner.—Address, Mr. BOYS, 81, Great Titchfield-street, Oxford-street.

TO ARCHITECTS AND ENGINEERS.

MR. EDWARD is desirous of meeting Gentlemen who require Coloured Architectural Designs, Perspective, got up and coloured in the neatest style at moderate terms. Mr. E. further begs to state that he makes a consideration in his charges, should the competition prove unsuccessful.—Address, Mr. EDWARD, 16, Woodstock-street, Bond-street.

TO THE BUILDING PUBLIC.

FIRST-RATE ORNAMENTS in PORTLAND, ROMAN and other CEMENTS, and PLASTER of PARIS, at reasonable prices, consisting of Vases, Balusters, Capitals, perforated Panellings, Cantilevers, Brackets, Trusses, Wreaths, Scrolls, Masques, Heads, Figures, Friezes, Gothic and other Chimney-Shafts, Soffits, Bed-moulds, Paterae, &c., &c., 36-inch Centre, Flowers fixed complete, 24s. each, smaller in proportion. An assortment of Shop-front Trusses always ready for fixing.—HERBERT and SON, Modellers, &c., 42, Parker-st., Drury-lane.

TODD'S PATENT METALLIC PROTOXIDE PAINT, for Stucco Fronts, Brickwork, Iron, Wood, and every description of Painting. This Paint has been most severely tested for nearly four years, by men of great experience, and has been extensively used under the superintendence of Architects, Engineers, and Surveyors of the greatest eminence.—Orders to be addressed to Mr. B. TODD, Patentee, 23, Dean-street Soho, London.

ATKINSON'S CEMENT.—WILLIAM WOOD, Jun., Manufacturer of Roman, Portland, and Bath Cement, Blue Lias Lime Works, CHURCH STREET, ROTHERHITHE, Sole Consignee for Atkinson's Cement.—Cement Chimney-pots of every pattern.

ROMAN CEMENT, made according to the specification of Parker's Patent, may be had genuine of J. M. BLASHFIELD (late Wyatt, Parker, and Co.), Waterloo Dock Wharf, Commercial-road, Lambeth, No. 1, Irongate Wharf, Paddington, and at the Manufactory, Mill Wall, Poplar. Also Plaster, Mastic, Tarras, Bricks, Tiles, &c.

PARIAN CEMENT, for internal Stucco, instead of PLASTER OF PARIS, may be painted and papered within twenty hours of its application on the bare walls; and rooms may be rendered habitable by its use before the materials commonly adopted would begin to dry. It is worked without the slightest difficulty. A finer quality is also prepared for ornamental plastering, for encaustic painting, &c. &c. Specimens of which may be seen at the Manufactory of the Patentees, CHAS. FRANCIS and SONS, Cement Works, Nine Elms, London.

KEENE'S PATENT MARBLE CEMENT forms an exceedingly hard and indestructible Stucco, which may either be prepared for paint, or finished in imitation of stone, by the addition of Portland or other stone dust.

It is a cheap and efficient substitute in place of wood for skirting, architrave, and other mouldings, in its application for which purposes it checks the progress of Fire and the attacks of Vermin.

Patentees and sole Manufacturers, J. B. WHITE and SONS, Millbank-street, Westminster, and Seel-street, Liverpool.

PORTLAND CEMENT, as manufactured by J. B. WHITE and SONS, possesses all the properties of the best Roman Cement, but has the advantage over that material of wholly resisting frost; and when used as a stucco it does not vegetate or turn green in damp situations, and requires no colouring. Employed as an hydraulic mortar for brickwork, it carries four to five measures of sand to one of cement, and is proved by trial to become harder and stronger in these proportions than Roman Cement with but one measure of sand. This superior connecting power, combined with its eminently hydraulic properties, point it out as the fittest material for building sea and embankment walls, the lining of reservoirs, cisterns, and baths, and for all those purposes where strength and a perfect resistance to water are required.

Manufacturers—J. B. WHITE and SON, Millbank-street, Westminster, and 36, Seel-street, Liverpool.

PORTLAND CEMENT, solely MANUFACTURED by WILLIAM ASPDIN, Son of the Patentee.—Messrs. ROBINS, ASPDIN, and Co. request reference to No. 236, page 491; and also Nos. 284 and 285, pages 343 and 351 of "The Builder," for accounts of EXPERIMENTS on the strength of Portland Cements, whereby the great superiority of their Cement is manifest. This Cement has been proved for upwards of twenty years in the Thames Tunnel to resist the action of water; it is stronger in its cementitious qualities, harder, and more durable than any other description of Cement; it does not vegetate, oxydate, or turn green; nor is it affected by any atmospheric influence whatever the climate, resisting alike the action of frost and heat. It is manufactured to set in from five to sixty minutes. For all purposes that Cement is applicable the Proprietors challenge competition.—Orders received by Messrs. ROBINS, ASPDIN, and Company, at their Manufactory, Northfleet, Kent, and their Wharf, Great Scotland-yard, Whitehall; also by their Agent at the Depôt, 1, Back Gorse, Liverpool.

JOHNS and CO.'S PATENT STUCCO CEMENT and PAINT.—The attention of Architects, Builders, Plasterers, Painters, Merchants, and the Public generally is solicited to the many advantages attached to these celebrated Materials, which, for their appearance, durability, imperviousness, utter resistance to frost or heat, and general economy, distinguish them from all other cements and paints, and fully justify the confidence reposed in them, as shewn by the numerous testimonials received from public bodies and private individuals of the first importance.—Prospectuses and particulars may be obtained from the sole agent, PHILIP HARE, at the Warehouse, 22, Steel-yard, Upper Thames-street.

MARTIN'S PATENT FIRE-PROOF and ORNAMENTAL CEMENT—REDUCTION of PRICE.—The Patentees beg to inform their Friends and the Public that they have made arrangements which enable them to offer this invaluable cement at a considerably reduced price. It has now been before the public so many years, and has obtained so high a standing in the estimation of all who have used it, that it is unnecessary to comment on its merits. The Patentees, however, feel called upon to observe, that by its use—from the greater amount of surface which a given quantity will cover, and the small amount of labour required in working it, a saving of 25 to 30 per cent. is effected as compared with other cements for internal use. Specimens shewing its beauty, hardness, and applicability to all plain and ornamental purposes, may be seen; and the Cement in any quantity obtained of the Patentees, Messrs. STEVENS and SON, at their Plaster and Cement Works, 186, Drury-lane, London.

WARWICKSHIRE CEMENT.—To Architects, Engineers, Contractors, and Builders.—R. GREAVES solicits the notice of the Profession and Trade to the very superior CEMENT he is now manufacturing at his Works, Stratford-on-Avon and Southam; the "Warwickshire" resembling "Caen" stone, and the "Improved" a dark tint of the "Bath," both of which will be found unequalled, especially for hydraulic purposes.

GROUND LIAS LIME FOR CONCRETE, &c.

N.B. Glazed Stone-Ware Pipes on sale.

Agents for London—Rutty and Verey, 2, South Wharf, Paddington; Manchester—J. Thompson, Back King-street; Liverpool—T. Wylie, 56, Gloucester-street; Belfast—W. and F. Lewis; Glasgow—W. Brown, 164, Broomielaw; Oxford—E. Cryer, Canal Wharf; Chester—J. Harrison, Linenhall-street; Worcester—F. Bradley, Butts; Evesham—H. Burlingham and Co.; Birmingham—J. Burchill, Berkley-street.

CHEAP ORNAMENTAL GLASS.—I beg to inform my friends and the public, that I have now completed a new ENGINE, and, owing to the facility with which I can execute orders, I am enabled to reduce my former prices considerably. The prices are now from ONE SHILLING PER FOOT SUP., and borders from SIXPENCE PER FOOT RUN. A large quantity of the cheapest patterns always in stock. Embossing and painted work on the most moderate terms.—CHARLES LONG, No. 1, King-street, Baker-street, Portman-square.—Cash only.

E. and W. H. JACKSON beg to call the attention of Builders and the trade to the reduced prices of their PATENT PLATE GLASS, which, from its cheapness, is now superseding crown in all respectable dwelling-houses. BRITISH and ROUGH PLATE, CROWN, SHEET, STAINED, and ORNAMENTAL GLASS, supplied of the best manufacture, and at the lowest terms. List of prices, estimates, and every information can be had on application at their warehouse, 315, Oxford-street.

PATENT PLATE GLASS.—CLAUDET and HOUGHTON beg to remind Architects, Builders, and the Trade of the very low price at which they are now selling PATENT PLATE GLASS, the effect of which is to supersede the use of Crown Glass in the principal windows of all the better class of dwelling-houses.—PLATE, SHEET, CROWN, COLOURED, and ORNAMENTAL WINDOW GLASS Warehouse, 89, High Holborn. Lists of the reduced prices forwarded free on application.

PAINTED and STAINED GLASS and ORNAMENTAL GLASS of every kind, for Windows.—CLAUDET and HOUGHTON, 89, High Holborn, execute every description of Ornamental Glass for Windows, in ancient or modern style, at the lowest prices consistent with superior workmanship, either in plain colour, ornamental in white, embossed, engraved, or richly painted.—Patterns and specimens may be seen at their Warehouse, 89, High Holborn.

THE UNION PLATE GLASS COMPANY beg to call the attention of architects, surveyors, builders, large consumers, and the trade generally, to the quality, colour, and substance of their highly-finished glass, and as the discounts vary according to size, they prefer giving a special estimate for each quantity required. To encourage the use of Plate Glass for glazing purposes, the price is considerably reduced, which will, for its durability and appearance, insure the preference to any other description.

ROUGH PLATE GLASS supplied for skylights, warehouses, workshops, and flooring, 3-8ths, ½, ⅝, and 1 inch thick.

London Warehouse, 99, Hatton-garden, Holborn.

H. CHRISTIE, Agent.

WINDOW GLASS.—THOMAS MILLINGTON solicits an inspection of the different GLASSES he has now in stock, the qualities of which will be found to be very superior.—87, Bishopsgate-street, Without.

NEW TARIFF.—Sheet in various large dimensions delivered free in London.

Common in 100 feet cases			20s. 0d.
Do.	200	do.	38s. 0d.
Thirds	200	do.	42s. 6d.
Seconds	200	do.	60s. 8d.
Best (very superior)		do.	100s. 0d.

ROUGH PLATE GLASS for WINDOWS, SKYLIGHTS, and FLOORS in sizes not exceeding 8 feet superficial.

¼ thick	1s. 0d.	½ inch	2s. 0d.
3-8th inch	1s. 2d.	1 inch	3s. 0d. per foot.
½ inch	1s. 6d.		

PATENT ROUGH PLATE TILES.

¼ thick	0s. 11d.	3-8th inch	1s. 7d.
½ inch	1s. 3d.	¾ inch	2s. 0d. each.

GLASS DOMES for SKYLIGHTS, from 18 to 50 inches in diameter. These are well worth notice.

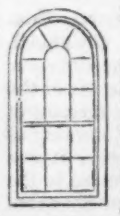
C C C Crown per crate 18 tables		£1 16 0
C C	do.	2 0 0
Fourths	do.	2 7 0
Thirds	do.	3 2 6

Large Crown Squares in 100 feet boxes ..... 2½d. per foot.
8 by 6 — 10 by 8 do ..... 2d. do.
Very superior Plate for Pictures and Windows, averaging 26oz. from 1s. 6d. per foot upwards.

CHAS. WM. WATERLOW,
MANUFACTURER

of Sashes and Frames, and Joiner to the Trade, 121, Bunhill-row, Finsbury-square.—Well-seasoned materials, superior workmanship, lowest prices.—Upwards of 400 DOORS, and a large variety of Sashes and Frames, always on sale. Glazed goods securely packed for the country. Steam-struck Mouldings in any quantity.—N.B. This Establishment is worth the notice of all engaged in building.

SHOP FRONTS, SASHES AND FRAMES, DOORS, &c. MADE FOR THE TRADE.



JOHNSON and PASK,
1, Amwell-street, Clerkenwell, near the New River Head,

Beg to inform the Trade, and the Building Public in general, that they continue to manufacture Sashes and Frames, Shop Fronts, Doors, and all other kinds of Joiners' work, on the lowest possible scale of prices. All kinds of Wainscot and Mahogany work done in the very best manner; French polished, and carefully packed for the country.—A full list of prices forwarded by return of post, to any part of the country.

TO BUILDERS AND OTHERS.

RAIN-WATER PIPES, heads, shoes, and elbows, half-round and O G gutters, sash weights, railing bars, sink and stable traps and gratings, air bricks, close and open coal plates, scrapers, tile lights, balcony panels, barrow wheels, &c.

GAS and WATER-PIPES, bends, branches, Tee pieces, syphons, and lamp columns; also hot-water pipes for heating buildings and hot-houses, and FLANGE PIPES, with all the usual connexions. A large stock of the above CASTINGS at very low prices, at JONES'S, Iron Bridge Wharf, No. 6, Bankside, Southwark.

TO ARCHITECTS, BUILDERS, AND BRICK-MAKERS.

PUMPS of Superior CONSTRUCTION, bored perfectly true by improved machinery, in various plain and ornamental patterns for Conservatories, Squares, Market Places, Roads, Gardens, and for Liquid Manure. BRICK-MAKERS' PUMPS, in Wrought and Cast Iron, HYDRAULIC LIFT PUMPS, and ENGINES for Wells of any depth. SINGLE and DOUBLE PUMPS up to twelve-inch bore, Kept for Hire.

BENJ. FOWLER, 63, Dorset-street, Fleet-street.

FLEXIBLE INDIA-RUBBER PIPES AND TUBING,
For Railway Companies, Brewers, Distillers, Fire Engines, Gas Companies, Gardening and Agricultural purposes, &c.

THE PATENT VULCANIZED INDIA- RUBBER HOSE-PIPES are made to stand hot liquor, and acids without injury—do not become hard or stiff in any temperature (but are always perfectly flexible) and as they require no application of oil or dressing, are particularly well adapted for locomotive engines, railway cranes, fire engines, pumps, gas, beer engines, gardens, and all purposes where a perfectly flexible pipe is required. Made all sizes, from ¼ inch bore upwards, and of any length to order. Vulcanized India rubber garden hose fitted with brass-taps, copper branch and roses complete, ready to be attached to pumps, water-butts, or cisterns. Sole manufacturer, JAMES LYNE HANCOCK, Goswell-mews, Goswell-road, London.

N.B. Vulcanized India-rubber washers of all sizes for joints or hot-water and steam pipes, and vulcanized sheet rubber any thickness for all kinds of joints, and other purposes.